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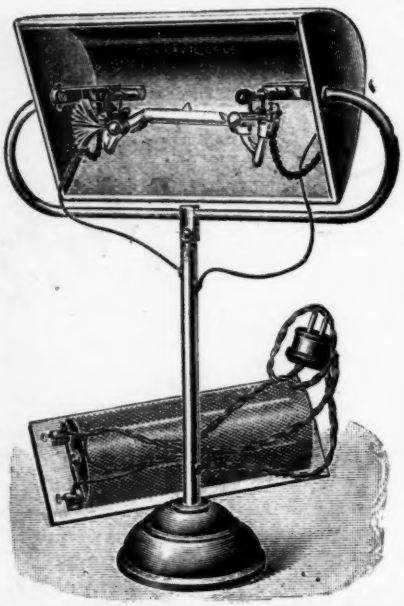

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THE EPILEPSIES AND LIFE ASSURANCE.*

BY

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OVER twenty years ago Professor Pierre Marie[1] of Paris, my old chief and teacher, wrote a paper with the arresting title, "At what age do tabetics die?" Those who know the work of this master of neurology will agree that on occasion it has been characterized by a somewhat iconoclastic rending of preconceptions or of established and conventional views from their pedestal; and the above-mentioned communication proved no exception. Marie was at pains to show that tabetics live as long as anyone else, in a general sense—that is to say, there is no clinical evidence that the disease hastens the end. This paper was written in the pre-Wassermann and pre-salvarsan era, so that if his conclusions were warranted by the facts twenty years ago it will, I think, be agreed that they should be even more justified to-day.

From the appearance of Professor Marie's communication I date my own scepticism as to not a few of the views that still are current in respect of the subjects of chronic nervous disease and their expectation of life, and under this category come some of those with whom we are at present concerned. Speaking as a neurologist, I ask myself how often have I seen an actual death from epilepsy; as far as my memory serves me, I have not personally observed any. With the help of the present registrar at the National Hospital, Queen Square (Dr. Arnold Carmichael), I have ascertained that for the years 1902 to 1925 inclusive 1,398 male and female patients were admitted there for treatment with a diagnosis of "idiopathic" epilepsy. Those who died in hospital number fifteen—that is, the death rate was 1.07 per cent. In spite of the fact that only those cases are recommended for admission which exhibit relatively serious symptoms (milder cases being treated always as out-patients) this percentage is insignificant, and far less than the hospital death rate from some other neurological diseases, such, for example, as cerebral tumour. I have not been able to define the immediate cause of death in all the fifteen fatal cases, since this would have entailed a prolonged search; but I can say that the majority died in status epilepticus, and that there were only one or two accidental deaths (for example, from asphyxia)—that is, less than half of 1 per cent. of the epileptic admissions.

Thus the impression is already left in the mind that when epilepsy as a whole is considered it cannot be regarded among the more common neurological causes of death. But this is only one aspect of the question. It may be taken that the neurologist is less likely than other practitioners to accept a diagnosis of "epilepsy," since he is fully aware of the variety of organic conditions which give rise to fits, and has probably had many opportunities of deciding whether a given "fit" should come into the "epileptic" category or not. Before any rational ideas can be obtained of the bearing of the problem of the epileptic on the question of life assurance it is imperative we should clear the ground by preliminary discussion of what is understood by epilepsy—a term that has been in vogue for generations, and enjoys the sanction of long usage.

The Nature of Epilepsy.

The first and the most important of the considerations is that "epilepsy" is a name for a symptom only; and while various "diseases" are still sometimes denominated by reference to a symptom (hemiplegia, spastic paraplegia, locomotor ataxia), the description is completely useless from the point of view of pathology. There are a dozen pathological conditions of which hemiplegia is the expression; similarly, a number of different morbid processes lead to disorder of function exteriorizing itself in the guise of a "fit." We might as well speak of "a case of cough" as "a case of epilepsy." Doubtless the reply will be that there is, as a fact, a nervous malady characterized by recurrent fits, and since we do not know its pathology and cannot give it a pathologically descriptive title it might as fairly be called "epilepsy" as anything else. While this retaliatory comment is justifiable enough, it is precisely here that the danger lies, for routine habits of thought have fixed in many minds the idea that if on rough and perhaps hurried examination organic disease is excluded, the occurrence of an occasional fit is in itself sufficient to substantiate the diagnosis of "epilepsy"—a nervous disease of unknown causation and uncertain prognosis. It is against this mode and habit of transferring to a given case of "fits" our conceptions of the elusive affection called "epilepsy" that I strenuously protest. Over and over again we see cases in which the diagnosis of "epilepsy" has been made on the occurrence of occasional manifestations belonging to the category of "fits," yet the subsequent history of the case belies the diagnosis.

Difficulties at once arise if we essay a definition of "epilepsy," not merely in regard to cases which are shown to have an organic basis, but also in respect of the so-called "idiopathic" variety itself (which, of course, is in reality epilepsy of unknown origin). Taking the latter first, we ask, On what feature or features is the diagnosis established? The answer will doubtless be, The development of fits. We next ask, What constitutes a fit? This question has received many different and sometimes mutually contradictory answers, and no definition of a satisfactory character has yet been evolved. The term has been employed for clinical phenomena ranging from a gross convulsion of a generalized kind, with cyanosis, tongue-biting, and relaxation of sphincters, to twitching of a limb or segment of a limb, even to twitching of a finger or fingers, or of part of the face, without the slightest loss of consciousness. There need not even be manifestations of a hyperkinetic character, since some conditions in which motionlessness is a feature occur in circumstances justifying their description as fits. Further, as is well recognized, recurrent phenomena of another order altogether, so-called psychical equivalents, have been included by many writers in the same category. I have several times seen uncontrollable attacks of "bad temper" both in epileptic subjects and in members of epileptic families not themselves subject to convulsions. Do we not speak of a "fit" of temper? Once more, every practitioner is conversant with the variety known as petit mal, and has also doubtless seen states characterized merely by a momentary "blank" in consciousness, without visible exteriorization of any kinetic kind—so-called *absences épileptiques*; and assuredly he has met with instances of loss of consciousness in which he has been unable to decide whether they were cases of "faint" or "fit."

In view of this disparity and diversity it is hopeless to look for a sufficiently comprehensive and at the same time precise definition of what the term "fit" is in practice used to connote. It is clearly not synonymous with convulsion, and as clearly does not of necessity imply a serious nervous condition. Thus, when we are told that a given individual is subject to fits, or has an occasional fit, we are far indeed from being authorized to assume that such a one is "epileptic" in any sinister sense.

Believing as we must, however, that an "idiopathic" clinical state of recurrent fits, seizures, attacks—what you will—is a common nervous ailment, for which as yet no constant cause has been unfolded, it is highly desirable we should recognize the existence of benign as well as of malignant varieties. In my recent Harveian Lecture[2] on "The Epilepsies" I referred to the case of a lady who had an epileptic fit at the age of 14, when her period of reproductive activity commenced, and another at 44, when it closed. Cases have come under my observation in which no more than half a dozen fits have occurred in a patient's lifetime; often enough the interval between attacks can be measured by years. And other cases are known where there has been one fit only. The truth is that by no means all "idiopathic" epilepsy is of bad prognostic significance, and it would be easy for me to cite personal experiences in regard to the relative harmlessness of many

* A paper read before the Assurance Medical Society, November, 1926.

such cases and to the satisfactory results of treatment. I am in the habit of stressing two points when called on to gauge the outlook in cases that apparently belong to the class we are for the moment considering: (1) Are there any physical or mental "stigmata" in the individual concerned? (2) Is the family history satisfactory? Speaking generally, if the patient is not weighed down by a bad heredity, and if no physical or psychical anomalies or abnormalities are conspicuous, the prognosis is good and the case will turn out to belong to the benign group. As a matter of observation I am inclined to believe that these considerably outnumber the others, and that the stress laid on neuropathic heredity has been overdone; I consider this variety of the "disease" is constitutional rather than hereditary. In this connexion the work of Douglas Thom[3] is of no little interest. He has studied the records of 1,536 epileptic patients, of whom 1 in 6 was married; 80 per cent. of the marriages resulted in children (553 offspring traced and their history obtained). In only ten cases (1.8 per cent.) did epilepsy develop. Again, Myerson[4] quotes the superintendent of the Massachusetts State Hospital for Epileptics to the following effect: "There are practically no families of epileptics in his institution, numbering 1,500 people, and a thorough search revealed four families of eleven people!" In face of these data we must revise our old conceptions of epilepsy of unknown origin; we are certainly not justified in perpetuating the view that it is commonly hereditary, and, like all hereditary conditions, incurable; or that if we cannot find the cause of the fits in a given case it is to be relegated to a mysterious "idiopathic" class and all hope of amelioration abandoned. Such ideas are utterly out of date.

Turning, in the next place, to cases in which "fits" are found to have an organic basis, there is patently no need to be concerned with any precise definition of the symptom. It is the physiological result of a pathological state, and the latter is the condition of which we have to evaluate the significance for good or ill. Fits are recognized to be, for example, a frequent concomitant of syphilitic disease of the brain and its coverings, of intracranial tumour, of cerebral vascular disease whatever its etiology, of intracranial infections, inflammations, and toxic haematogenous or lymphogenous processes. If a person is over the age of 40 or 45 it is my invariable practice to be on the look-out for an organic basis should his complaint be of occasional fits. The epilepsy of elderly patients has very frequently indeed a vascular origin. One or two fits at intervals, generalized in character and for the time monosymptomatic, may be found to precede the development of cerebral tumour, of general paralysis, or of vascular disease outside the cerebrum. Vascular changes in the brain are a much more common cause of Jacksonian epilepsy than is intracranial tumour.

Clinical and Experimental Evidence.

A little acquaintance with clinical data of this kind is doubly useful; we are able to adjudicate on such cases of "epilepsy" by reference to the morbid process causing the epileptic symptom without getting entangled in any maze of doubt as to what epilepsy is or is not; and at the same time we remove such cases from the vague category of "epilepsy" to the definite nosological group to which they respectively belong. Speaking for the moment from the life assurance standpoint, it is an unequivocal gain if we can assess a given case as one of cerebral vascular disease and not as one which happens, *inter alia*, to exhibit epileptic phenomena.

A second important consideration is of a somewhat different kind. The evidence of the experimentalist can be advanced to prove that epileptic convulsions can be produced in animals which show no signs of disease in any pathological sense. A healthy animal which is being bled to death may develop convulsions *sub finem*, while the respiratory centres are failing. Tetanization of the motor cortex will, under suitable conditions, result in convulsions. By the use of convulsants of the absinthe and thujone class fits can readily be caused in animals which are perfectly normal members of their respective species. According to Cobb and Macdonald,[5] the march of events during a convulsion produced by thujone is very similar to that seen during the epileptic fit. Elsberg and Stookey[6] have proved that these experimental toxic fits can be prevented by the circulation of Ringer's fluid through the brain. The conclusion is obvious—that the phenomena of epilepsy can and do occur in appropriate circumstances in animals which are healthy and which exhibit no defect of neural structure.

It will, I think, be admitted that in man the greater part of the manifestations of a fit, Jacksonian or generalized, is the result of consecutive discharges of normal, stable nerve cells. I have indicated in the Harveian Lecture[2] (already referred to) the line of argument supporting this contention, and have there drawn the conclusion that "healthy neural mechanisms may become epileptogenous, without being in the remotest degree diseased."

If we follow this line of reasoning it may be fairly taken as indicating an epileptic potentiality in any mechanism of any neural level in man provided the appropriate factors come into being. In human cases of apoplexy (thrombotic, embolic, haemorrhagic, traumatic) how frequently do we not observe a fit or fits in the course of the illness, yet we never dream of regarding these patients as being the subjects of epilepsy. Their fits are the expression of a disorder of function which a number of factors have combined to produce; if the factors are removed the fits cease and leave no trace behind them. When a general paralytic or a uraemic patient has a convulsive attack we never dub him an epileptic, although we say his attack has been epileptic in character; knowing to some extent the causation in these particular instances we feel that if it can be controlled the attacks will stop. If we can operate successfully on a case of Jacksonian epilepsy from cerebral tumour we have good reason for holding that the fits will in consequence disappear. In other words, only one conclusion can be drawn—namely, that any constellation of motor nerve cells may on occasion become unstable; that the cause of this instability is no innate or inherent defect of the nerve cells as such, for we have good reason to believe they are normal; that it is constituted rather by some agent (toxaemia, pressure, etc.) which it is our business to detect and counteract; if we can do so, the neural mechanisms will recover their normal functions. This consideration should in its turn lead us to avoid confirming in our patients' minds the impression that a diagnosis of "epilepsy" has somehow a sinister significance; this is at present certainly the view of "the man in the street," and it must have been to some extent derived from medical opinion.

Lest these views should be thought to be of merely theoretical interest I may refer to experiences in regard to what has been called "war epilepsy." However much one is disinclined to accept in full the arguments and inferences of Pierce Clark,[7] the late Dr. R. G. Rows,[8] and others who believe that "epilepsy" is a "functional mental illness," curable by "mental methods," there can be little doubt that during the war, and since, most of us have met with cases in which the apparent cause (predisposing? exciting?) of full-blown epileptic fits has been a stimulus belonging to the mental (as opposed to the physical) series. Treatment of some at least of these cases by non-physical means has resulted in an apparently abiding cure.

One case will suffice for citation. The patient was at Dunkirk during the later part of the war, and he and his mates were liable to shell attack from land, sea, and air. On one occasion he had retired to a bomb-proof shelter, which was struck, and he was "buried alive"; when subsequently rescued he was found to be unconscious. Some time after the war was over he was in a cinema in South London with his fiancée. The place was dark and stuffy, and by some association there came into his mind a memory of the dugout at Dunkirk. At that very moment the orchestra began to play Rachmaninoff's well known prelude, which, as he, a student of music, was aware, is supposed to represent the feelings of someone who is being buried alive. Within a minute or two he lost consciousness, and developed a full epileptic fit, with tongue-biting and incontinence. He was treated by psychotherapeutic means, and has had no further epileptic attack.

Cases of this kind are no war novelty. They were recognized long ere the world conflict caused them to reappear in some numbers. Their significance resides in the apparent causation of physical fits by psychical excitations; if the latter can be checked the physical (neural) mechanisms pursue their normal activity undisturbed.

The practical lesson to be learned from the preceding discussion is, I submit, that the epileptic seizure is a phenomenon of normal nerve mechanisms, which can be roused (or, conceivably, released) into abnormal activity as a consequence of the action of factors (or combinations of factors) of different grades and classes. Such an occurrence may be unique in the patient's experience, or may be repeated, may, indeed, become chronic; whether single or multiple, the fit is itself no disease. If we will thus envisage our cases of "epilepsy" we shall be compelled to consider every case solely on its merits, and not by reference to ideas which have for too long a time led to the dismissal of any and every adjudged "epileptic" from the scope of therapeutic optimism.

I may turn now to the application of these considerations to the problem of the epilepsies as it confronts the officers of life assurance societies.

Prognosis as to Life.

In the first place, it seems fairly certain that medical decisions and office practice have been influenced and moulded, in some instances, by traditional conceptions as to the nature of epilepsy. It has been regarded, in its "idiopathic" form, as a chronic and incurable "disease," and its subjects have been held to be uninsurable. Doubtless, also, practice has been determined by the view that an element of risk is inherent in all cases, and forms an insuperable objection to acceptance. Possibly, indeed, the reader may be impatient of any effort to discriminate among the epilepsies, holding that every fit—organic, hysterical, psychogenic, idiopathic—is a risky affair, and its pathogenesis immaterial. The risk, we may be sure, is thought to be one of injury or death. Let us endeavour in some degree to assess it.

According to Sir William Gowers,[9] "the danger to life in epilepsy is not great." Some of us have often seen the most severe fits passed through with apparent impunity, and conclude that in the fit itself the danger to life is minimal and negligible. The contention is rather that risk of "accident" accompanies every fit, in greater or less degree, and I have no thought of denying its existence. Deaths from choking, suffocation, burning, drowning—all are known and admitted. Yet in my experience of epilepsy of the "idiopathic" kind I have only had two cases of accidental death—one from smothering and one from drowning. The National Hospital figures given above indicate how trifling is the risk of a fatal termination by accident. Gowers concludes that "the danger of such accidental death is unquestionably small. The proportion of cases in which it occurs is not ascertainable, but, if all cases of epilepsy are considered, it is minute." With this conclusion I am in cordial agreement; the risk is continually and grossly overrated because its rare occurrence is allowed to colour our conceptions of the seriousness of the "disease."

However, we may approach this question from a somewhat different angle. What is the mean age at death in the case of epileptics? I quote from Aldren Turner's[10] study of the subject the following figures.

TABLE I.—*Epileptics: Mean Age at Death.*

Authority.	Mean Age at Death.
1. Spratling[11]	29.4 years
2. Snell[12]	33.0 ,,
3. Massachusetts Epileptic Institution[13] ...	39.0 ,,
4. Lord[14] (London County Asylums) ...	40.0 ,,
5. Muirhead[15] (Scottish Widows' Insurance Association)	48.0 ,,

So great is the disparity between these various figures that it is clear they must represent very different types of case. To apply indiscriminately such conclusions as these figures offer is obviously not permissible. They are vitiated, moreover, from still another point of view; we have no means of ascertaining the pathology of the cases forming the material, which has been classified solely by a symptom—a most precarious proceeding, as all must admit.

That incompleteness of classification and absence of pathological control are essential stumbling-blocks in the way of reaching any even approximate conclusion as to average duration of life or mean age at death is apparent from consideration of quite another group of statistics. From the Registrar-General's Statistical Review of England and Wales (1925)[16] I find in that year the cause of death certified as "epilepsy" in the case of 1,097 males and 1,026 females. The figures for the different age periods are as follows:

TABLE II.—*Deaths attributed to Epilepsy, 1925 (Registrar-General).*

Age Period (years).	Males.	Females.	Age Period (years).	Males.	Females.
0-1	22	12	45-50	70	68
1-5	39	30	50-55	64	74
5-10	46	18	55-60	70	73
10-15	55	39	60-65	65	68
15-20	87	75	65-70	54	71
20-25	96	77	70-75	43	51
25-30	82	74	75-80	29	37
30-35	83	94	over 80	29	23
35-40	83	67		1097	1026
40-45	80	75			

What can be legitimately inferred from the above table? It should be stated that according to the international agreement on which disease classification is based the group "epilepsy" does *not* include infantile convulsions, for which other statistical figures are supplied. The neurologist at once asks, What is the "epilepsy," separate from "infantile convulsions," which is given as the cause of death of 34 infants under 12 months, or of 103 children under the age of 5? To suppose all are cases of so-called idiopathic epilepsy is impossible. Again, has "idiopathic" epilepsy been responsible for 52 deaths at the advanced age of 80 and over? As long as "epilepsy" remains undifferentiated, just so long will tables of this kind prove nothing whatever. Taking them at their face value, however, and solely for the sake of comparison of age periods, we observe that just as many persons die from "epilepsy" between the ages of 70 and 75 as between 10 and 15, and that more live to over the age of 60, eventually to die as "epileptics," than succumb below the age of 20. I scarcely think figures of this kind favour the traditional views on the subject that still obtain currency.

We may look, in the second place, at the question of the frequency, among nervous diseases, of "epilepsy" as a cause of death—again with the proviso that this particular diagnosis covers as great a multitude of diagnostic sins as does influenza.

I have compiled from figures given in the 1925 Statistical Review (England and Wales)[16] the accompanying table.

TABLE III.—*Deaths attributed to Nervous Diseases (England and Wales), 1925.*

Nervous Disease.	No. of Deaths (Male and Female).
Cerebral apoplexy	27,031
Epilepsy	2,123
Paralysis (unstated — for example, hemiplegia, etc.)	2,098
Meningitis (all kinds)	1,814
General paralysis of the insane	1,539
Diseases of ear and mastoid	1,183
Cerebral tumour	1,635

Incidentally, the valuelessness of these descriptive terms from the only correct classification standpoint—namely, the pathological—is seen at once in their mixed character; "paralysis" is a clinical diagnosis, and so is "epilepsy," whereas cerebral tumour and meningitis are pathological diagnoses. Be this as it may, of nervous causes of death "epilepsy" ranks second, being exceeded only by apoplexy. This seems serious, but only on superficial consideration. How many of the cases of "epilepsy" were syphilitic?

How many due to cerebral vascular disease? How many the result of intracranial pressure, of meningeal or cortical inflammation, even of trauma? In none of these respects can any information be gleaned.

My next table comes from the United States Mortality Statistics (1925),[17] and embodies the figures for the two years 1921 and 1922, given, not in actual numbers, but in death rate per 100,000 of the population of thirty-seven States then in the registration area.

TABLE IV.—*Death Rates: Nervous Diseases (U.S.A.), 1921 and 1922.*

Nervous Disease.	Death Rate per 100,000.	
	1921.	1922.
Cerebral apoplexy	82.7	85.1
Paralysis	6.2	6.5
General paralysis of the insane	6.3	6.6
Meningitis	4.2	3.6
Epilepsy	3.1	3.3
Diseases of the ear...	3.2	3.1

According to these statistics, "epilepsy" is not second, but fifth, on the list of killing nervous diseases, and stands practically on a par with diseases of the ear. Since here also no attempt is made to differentiate varieties of the symptom or to distinguish pathological bases for its appearance, the table in reality is valueless; if discrimination were exercised I am convinced that "epilepsy" would rank still lower in the list. As it is, there is, in my opinion, clear justification for a revision of their mental attitude on the part of any life assurance officers who may look askance at cases thought to be "epileptic," and feel inclined to drop them.

In regard to the actual practice of offices I have little information to offer. Aldren Turner,[10] who is one of the very few who have touched this aspect of an important question, cites in his book (1907) the experience of the Scottish Equitable Life Assurance Society. At that time the society had accepted twenty-three proposals, with a personal history of "fits," during a period of fourteen years. He says:

> "It ought, however, to be stated that none of them was a confirmed epileptic, but only persons who had had at some previous period of life one or more epileptic seizures. The records were examined seven years later, when it was found that two persons had died—one from tumour of the brain, the other from uraemia. Of the remaining 21 cases, the eldest was 65 and the youngest 35 years of age. . . . The average age of the 21 surviving cases was 47 years. . . . It is therefore obvious that the acceptance of these cases was a justifiable procedure, more especially as the added years ranged from five to twenty."

The first comment I may make on this interesting experience is, that the two applicants who died were not cases of "epilepsy" at all; one was a case of cerebral tumour, and the other of renal disease. Scanty though these figures are, it is a remarkable circumstance that the only two fatal cases of "epilepsy" were as a fact wrongly diagnosed. A second comment is that acceptance of these "epileptic" cases was justified by the event. Turner adds a further point of some note in this connexion. Persons rarely present themselves for insurance under 21 years of age, and more than 75 per cent. of so-called idiopathic epileptic cases have already developed symptoms by this age. The prospect is distinctly in favour of freedom from the affection as the years go on. Otherwise expressed, if there is a family history of epilepsy and if the individual proposing has not himself developed epileptic symptoms by the age of 21, the chances are greatly against his exhibiting them at a later period. Gowers estimated these chances at 50 to 1 against, and if the reader will refer to the figures quoted earlier from Myerson he will agree that this ratio overstates rather than understates the risk.

I do not hope to be able to do more than disturb a little the preconceptions of any who, accepting precedents and traditional practice, refuse proposals coming from "epileptics" of any kind or degree. Ideas dating from a less knowledgeable era have had so long a start that one doubts if they will be overtaken. Hughlings Jackson once said that it takes twenty-five years for new conceptions of disease to penetrate the mind of the profession, and if this is needlessly cynical, it at least embodies an element of truth.

CONCLUSION.

Summarizing the trend of argument as it makes its appeal to me, I may conclude as follows:

1. Epilepsy is not a disease but a symptom.
2. It is a symptom of abnormal function of normal neural mechanisms.
3. It is caused by a number of differing pathological processes.
4. These processes are the diseased processes which have to be diagnosed; *they* are the "disease," not the "epilepsy."
5. From the standpoint of life assurance it is the disease and not the epilepsy which is to be adjudicated on in the usual way.
6. Among the epilepsies is a group commonly called "idiopathic"—that is, as a fact, epilepsy of unknown origin.
7. This particular variety exists in different forms and degrees, of which perhaps the major part is benign, not malignant.
8. As an aid in differentiation, attention is to be given to the mental and physical "make-up" of the individual and to the family history and heredity.
9. Although heredity is not a negligible factor its influence has been much overestimated.
10. The risk of injury or of death in the fit itself is altogether minute.
11. The risk of injury or of death as an accident arising out of the fit has also been persistently overestimated, and is quite insignificant when epilepsy as a whole is considered.
12. Existing tables purporting to give mortality statistics in respect of epilepsy are meaningless and valueless, since the epilepsy they refer to is undifferentiated.
13. Such as they are, they do not substantiate the view that the life of epileptics is short.
14. If epilepsy of the so-called idiopathic variety does not reveal itself before the age of 21 the chances are greatly against its subsequent appearance in proportion as the years pass.
15. In my opinion a case has been made out for the individual consideration, strictly on its merits, of every case in which fits have occurred that may present itself to the life assurance medical officer.

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THROMBO-ANGIITIS OBLITERANS.

BY

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THE name thrombo-angiitis obliterans was suggested in 1908 by Buerger for this interesting and remarkable disease, and has been accepted almost universally in the United States. Two cases have come under my care which illustrate the tragic and mysterious nature of its clinical manifestations.

The literature on the subject is sparse, but those who have made it a special study believe that it almost exclusively occurs in male adult Jews, especially in the poorer class of Jew who has migrated from Russia to America or elsewhere. It has been found also in Central and South-Eastern Europe, and appears to have been especially prevalent during the war. The disease is almost unknown among the inhabitants of these countries, but it has been studied by Parkes Weber in London, who admirably describes the condition in the *Quarterly Journal of Medicine* (vol. 9, 1915-16). Most of the original work comes from Leo Buerger of New York. It is sometimes referred to as Buerger's disease.

For no ascertainable reason some inflammatory condition arises in the deep vessels of the extremities, usually the legs, ending in thrombosis and obliteration, as the name implies. At the onset there may be no clinical evidence of the existence of such a condition, but as time goes on —weeks, months, or years—the organization of the inflammatory products proceeds, until finally local syncope and death may supervene. When a point is reached at which the circulation is at a minimum, and a struggle is taking place to maintain the vitality of the part, the pain often becomes unendurable, and sooner or later, in the majority of cases, amputation becomes inevitable, either for the relief of pain or in anticipation of a spreading gangrene. It is to be emphasized that the disease is pre-senile, that it is non-syphilitic, and is not embolic in origin. Frequently the disease in the arteries is accompanied or followed by thrombosis of the veins. The disease does not progress continuously; surprising changes, both for better and for worse, are the impressive features of the variegated clinical picture of thrombo-angiitis obliterans. The attempts of Nature to provide a new circulation, either by collateral anastomosis or by the canalization of the thrombosed blood vessels and connective tissues, is mentioned by all the writers. From a study of the published cases it would appear that this attempt is usually followed in the end by clinical, as distinct from pathological, failure. Thus the disease has a tendency to periodic relapse, and may end fatally when some important vessel is attacked. The two cases in Dublin which came under our care were diagnosed more by a process of exclusion than by anything tangible or concrete which could be obtained from the history or by clinical examination. Syphilis was first excluded; Raynaud's disease and the other angio-neuroses, together with endarteritis obliterans, were then eliminated. The urine in both cases was sugar-free, and there was no cardiac or other discoverable lesion remote from the affected parts. Buerger admits that only in very few cases can the symptoms justify a diagnosis in the incipient stage; it is only when we compare the history with the subsequent events that we can relegate definite signs to the onset of the vascular changes. After all, it is from the healing of the vascular lesion, with the consequent disastrous occlusive thrombosis, that the diagnosis is made. In both the cases here reported, and in nearly all the others recorded, pain in the calf of the leg, of the type known as intermittent claudication, was an early sign. An angry red colour of the foot, when allowed to hang, together with puffy toes, is a constant sign when the disease is well established.

Trophic lesions may be the first sign, and there are acute cases in which gangrene very rapidly develops. The initial symptoms may be too slight to attract attention. Both legs may be intensively involved with thrombo-angiitis obliterans, yet one shows outward signs of disease, the other, to all intents and purposes, appearing normal to the patient, but the pulse is absent in the dorsalis pedis, posterior tibial, and popliteal arteries. Cases suffering only from intermittent claudication have many times been treated for rheumatism, for gout, for flat-foot, and other orthopaedic conditions. Thrombo-angiitis obliterans in such cases is neither thought of nor looked for, but if a careful examination is made, in addition to pulseless vessels, blanching and reactionary redness becomes apparent on changing the position of the foot. A history of thrombo-phlebitis should always be sought. In one case mentioned by Buerger, of a Russian Hebrew, aged 32, all the vessels of both lower extremities, from the femorals down, were pulseless. The redness and the blanching were obvious, but there were no trophic disturbances, the patient complained of no pain, and considered himself perfectly well.

In attempting to classify the disease, Buerger suggests: (1) the typical form in the lower extremities; (2) the same with associated thrombo-phlebitis; (3) the same with involvement of the upper extremities; (4) a form difficult to diagnose in more senile patients who suffer from secondary or complicating arterio-sclerosis. I think that any one of these types may be acute, or subacute and intermittent, or chronic and intermittent.

Weber, in his close study of the disease amongst adult Jewish males resident in London, makes some interesting observations. One of his patients was aged only 1 year, and another only 2½ years, when they migrated to England from the East. He states that the affection occurs almost exclusively among Jews, but that it is not absolutely limited to the poorer classes. In nearly every case there was a history of habitual cigarette smoking (the brand of cigarette had no significance), and he thinks this is a contributory factor in producing the disease. The essential cause of the disease still remains unknown. Weber emphasizes the fact that acquired or inherited syphilis is almost invariably absent. It will be seen later that the two cases which form the basis of this communication might well have served as illustrations for his remarks.

"The characteristic symptoms of the disease are: (1) redness or cyanosis of the foot when it is allowed to rest in the dependent position; (2) pallor of the foot on movement of the ankle-joint; (3) intermittent claudication when the patient walks for a few minutes; (4) absence of pulsation in the arteries of the foot, most noticeable in the dorsalis pedis artery."

Some confusion has arisen owing to the use of the term "erythromelalgia." It was originally employed by Weir Mitchell for vague conditions of an extremity associated with pain and redness or cyanosis. It is not a diagnostic term, and might be applied to frostbite as well as disorders of functional origin, or any of the many angio-neurotic conditions. The disease never occurs in a woman. "The Jewish women," says Weber, "in the East End of London are all abstainers from tobacco; their men folk are notoriously fond of it."

TREATMENT.

The question of treatment can only be discussed in a general way. Each case must be judged on its merits. The pains may reach an intolerable pitch and call for amputation within a few weeks in acute cases. There is a difference of opinion as to whether amputation should be performed high or low. I am convinced that where there is any doubt high amputation is best. It is the well established surgical procedure for gangrene which is spreading beyond the toes. Knowing the pathology of the disease, the rules which guide us in dealing with senile gangrene may be reasonably followed. Sir Anthony Bowlby[1] says that the best course is to wait and see to what extent the collateral circulation is capable of dealing with the part. When senile gangrene is not limited to the toes, but has spread to the dorsum of the foot, amputation should be carried out without delay. The operation should be performed immediately above the knee. Buerger states that in the majority of cases amputation of at least a portion of the leg will become necessary, and that the Stokes-Gritti operation is the ideal procedure. Low amputations have been occasionally successful, but the risk of failure is too great, as is illustrated in both the cases mentioned below.

Conservative Treatment.

Buerger recommends an ingenious method of encouraging the capillary circulation, a method somewhat analogous to the contrast baths recommended by Sir Robert Jones in orthopaedic conditions. Buerger's plan is to induce reactionary hyperaemia in the affected part by a preliminary elevation of the leg followed by its depression into a dependent position. It is effectual in the milder form of cases if the pain can be tolerated. The period of elevation should be the minimum amount of time necessary to produce a frank blanching of the foot; this takes from thirty seconds to three minutes. The leg is then allowed to hang for one or two minutes beyond the time necessary for the induction of a distinct blush. The third position is that of rest with the leg horizontal. The sittings should be repeated frequently during the day. Passive hyperaemia by Bier's suction method has been helpful. The apparatus must be large enough to enclose the front part of the foot; the application is made for five to fifteen minutes three times a week.[2] Ligation of the femoral vein below the entrance of the long saphenous vein has been tried without success.[3] It is difficult to see on what basis some authorities recommend the intravenous injection of sodium citrate. The anti-coagulating action of sodium citrate in the employment of blood transfusion is followed by a coagulating effect in the case of the recipient's blood, and it is now well known that whether sodium citrate is given intramuscularly, intravenously, or subcutaneously, the result is prompt and pronounced shortening of the coagulating time. It is for this reason that injections of sodium citrate are effective in cases of haemorrhage.

Arterio-venous anastomosis has been, for obvious reasons, unsuccessful, and Leriche's periarterial sympathectomy not only failed in both the cases under review, but in every other case on record in which it was tried. For the relief of thrombo-angiitis obliterans the operation should now be abandoned. Alcohol has been injected into the posterior tibial nerve at the ankle for the alleviation of pain with success. The anaesthesia of the sole of the foot and the paralysis of the intrinsic muscles which follows make practically no difference in walking.

The outstanding features in the history of the two following cases were: (1) Neither was a Hebrew; (2) neither had syphilis; (3) both had served abroad; (4) both were heavy cigarette smokers; (5) the first patient lost portions of all four limbs during a period of about ten years; (6) the second case was of the acute variety, and the patient lost the left leg above the knee within a few weeks of the first attack of pain in his calf.

CASE I.

This patient was not directly under my care, but I saw him many times during his three years' treatment in Blackrock Hospital. The case illustrates the tragic course which the disease may follow. Up to date he has had a general anaesthetic on more than thirty occasions. The patient served during the war in the navy, at first in the North Sea, and subsequently in the tropics. He remembers that he was off duty for a day or two at a time owing to cramps in his legs. In 1915 the right foot became particularly troublesome; the big toe, he states, became white and lost sensation. These attacks were transitory. In 1919 he was admitted to the Haulbowline Hospital at Cobh (Queenstown); the great toe of his right foot had become black; it and the neighbouring three toes were removed. He was nine months in this hospital, but the wounds never healed. He was discharged, and remained at home for one and a half years. When at home the great toe of the other foot (left) became black, and he was admitted to a Dublin hospital, where a Syme's amputation was performed in 1922. The stump became gangrenous, and, as in the case of the toes of the other foot, the granulating wounds took eight months to heal. About a year later he was admitted to Blackrock Hospital with spreading gangrene of the right foot (from which the toes had been removed in 1919), and a modified Lisfranc amputation was performed. The flaps became gangrenous, and after many local operations amputation was performed below the knee. Necrosis of the bone followed, which necessitated a further operation, and a femoral sympathectomy was attempted at the same time (May, 1924, one year after admission). In 1925 the left leg (from which the foot had been removed in 1922) showed signs of slowly developing gangrene, and an amputation was performed below the knee eight months later. Once again the flaps became discoloured and gangrenous, and a month later amputation was performed in the lower third of the thigh. Almost simultaneously with the development of the gangrene in the stump of the left leg trouble commenced in the left hand. Blushing and blanching, with excruciating pain in the tips of the fingers, commenced, as in the case of the toes. The tips of the little and ring fingers sloughed off. Three months later the tips of the fingers and thumb of the opposite hand went through a similar but modified process. Mercifully, the spreading process stopped when the tips of the phalanges were protruding through the finger pulps. It became necessary, however, to amputate the first finger of the right hand. His present condition is: Left leg amputated through lower third of thigh; right leg amputated below the knee; right hand, first finger amputated, nails and tips of the other fingers involved; left hand, nails and tips of fingers also affected—the middle finger is missing from an accident in childhood. There is a distinct rubor to be seen on both ulnar and radial sides of both palms. Both radial pulses are good, both femoral arteries are pulsating below Poupart's ligament.

Raynaud's disease cannot absolutely be excluded in the diagnosis of this case, but against it is the fact that the patient was and is a robust sailor who contracted the disease at the age of 25. All the preliminary phenomena were confined to the feet. The gangrenous process was deep and destructive in the lower limbs over a period exceeding ten years. Lewis and Leichert[4] mention a similar case. They suggest ligature of the femoral artery distal to the profunda as a means of forcing and accelerating the development of collateral circulation through more healthy channels.

CASE II.

An officer, aged 28, who had served in Egypt for a number of years, in the middle of August, 1926, was boarding a ship *en route* for home when he had a sudden severe pain in the calf of his left leg. His account of the sudden pain—as if someone had hit him from behind—reminded one of the typical history given when the plantaris tendon is ruptured. On arrival home I saw the patient in consultation with Drs. O'Reilly and Wilson. The condition of the leg was quite characteristic of thrombo-angiitis obliterans. When the foot was in the dependent position it was flushed, and had an appearance as if it had been immersed in very hot water. When the foot was raised to the horizontal position only a few seconds elapsed until it became blanched and marble white. The pain then became excruciating, and could not be borne for more than a minute. When allowed to hang once again the capillary flush rapidly reappeared, and the pain was markedly relieved. The patient slept with the leg hanging out over the side of the bed, supported on a low chair and cushion. The arteries round the foot were pulseless. Nothing could be obtained from the history to throw light on the local condition, and a thorough routine examination gave equally negative results. In making the diagnosis we were faced with the fact that this patient was not a Hebrew; that he was by no means of the poor, half-fed type of patient which usually contracts the disease; in fact, he was a strong, young, athletic officer, fond of polo and pig-sticking, and many other athletic activities. Embolism was excluded in the absence of cardiac defect and of any recent illness. It was concluded also that if the limb survived the first shock of sudden arterial occlusion from embolus, in three weeks all anxiety about collateral circulation would have disappeared. The reverse occurred; each few days marked a further diminution in vascular supply. The diagnosis of pre-senile, non-syphilitic endarteritis obliterans was made, a term which in cryptogenetic cases is interchangeable with thrombo-angiitis obliterans, but not so expressive. We had hoped that, as gangrene had not actually appeared in the first two or three weeks, the collateral circulation would become more and more established in a young, vigorous man, and that the limb would be saved; but, on the contrary, the case was of the acute form; trophic sores developed on the great toe and the neighbouring toe, lymphangitis followed, and the glands became enlarged in the groin. The patient became worn out with pain, morphine had little or no effect, and amputation was performed above the knee on September 18th.

During the course of examination the patient's arteries were *x*-rayed to discover if signs of calcification were present; when the femoral artery was exposed high up to perform the Leriche operation, some days prior to amputation, it felt normal in every respect. The stripping of the artery was not attended with any unusual difficulty, such as has been reported by other writers. It was observed, however, that primary contraction of the artery when the sympathetic sheath was in the process of removal did not occur.

During the three weeks at our disposal from the time of the first pain in the calf to the amputation above the knee conservative treatment, in addition to the Leriche operation, was vigorously employed. Hot-air baths, diathermy, immersion of the foot in heated wax, to mention just a few of the remedies tried, failed to influence the progress of the disease.

Dr. T. T. O'Farrell, who examined the limb after removal, found the popliteal artery blocked by an old thrombus one inch below the level of amputation. Old-standing endarteritis was obvious here and in the vessels supplying the foot. Thrombo-phlebitis, with occlusion and calcification of the deep veins, was also found. Canalization of the thrombi and of the connective tissues completed the pathological picture.

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THROMBO-ANGIITIS OBLITERANS IN ASSOCIATION WITH SYPHILIS.

(With Special Plate.)

BY

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As comparatively few cases of thrombo-angiitis obliterans have been reported in this country we desire to record the following instance. As will be seen, the symptoms were characterized by pain, coldness of feet, ischaemia, intermittent claudication and erythromelalgia, evidence of trophic disturbances shown by ulceration of leg and gangrene of toe, and, at a later date, extension of the disease to the other limb.

The patient, who is of British nationality, is a tailor's cutter, aged 59. Previous to this illness he was always healthy, and he gave no history of syphilis. The first symptoms were noticed nine or ten years before he came under observation, when he suffered from paroxysmal pains in the calf of the left leg; at first they came on after standing for some hours at his work, and were relieved on resting. Superficial ulcers developed on the anterior aspect of the lower third of both legs a few years later. For the past two years the pain had increased in severity; it was intense after walking, and was situated in the lower third of the left leg and foot. Resting gave relief, but the pain recurred on walking a short distance, say a hundred yards. These symptoms of intermittent claudication were associated with a sense of numbness or coldness, especially when the weather was cold and wet, and the foot became blanched and cold to touch. This transitory anaemia rapidly passed off on resting. The family history revealed nothing noteworthy. The patient is married; his wife and two children are alive and well. The latter show no evidence of congenital syphilis.

On admission to the Royal Victoria Infirmary, Newcastle-on-Tyne, on May 18th, 1925, an oval ulcer, measuring 1 in. by 3/4 in., posterior to the internal malleolus of the left foot was present; the skin edges were smooth, and its base was granulating, but covered with purulent exudate. The ulcer was superficial, and did not extend deeper than the subcutaneous tissue. The skin in the vicinity was pigmented, and showed numerous depigmented scars of previous ulceration. A similar appearance of healed scars was present in the right leg; the left great toe showed a condition of moist gangrene, limited to the toe.

The lower third of the left leg and foot were colder to touch than the rest of the leg, and on allowing the leg to hang down an erythematous blush developed rapidly over the inner border and dorsum of the foot, extending up to the ankle, thus giving the foot the appearance of typical erythromelalgia. The foot was most comfortable when elevated and kept cool. No alteration in sensation was detected, and no loss of motor power. No pulsation could be felt in either anterior or posterior tibial arteries, and only faint pulsation over the popliteal artery. Later on no pulsation could be felt in this vessel. The blood gave a strong positive Wassermann reaction, and the urine contained no sugar. A radiograph taken on May 23rd, 1925, revealed nothing of note in either leg. No evidence of tuberculosis was found in the lungs or elsewhere in the body.

The patient was transferred to the surgical side of the hospital, and on June 23rd Mr. Pybus amputated the leg about a hand's breadth above the knee-joint. There was little bleeding from the stump, and recovery was uninterrupted. The lumen of the femoral artery appeared to be practically occluded.

When seen again nearly six months later (December 14th, 1925) pulsation was present in the left femoral artery, and the right foot had rather an erythematous blush over the dorsum and inner aspect, extending to the ankle; pulsation, however, was still present in the anterior and posterior tibial arteries. The patient complained of coldness of the foot, especially on standing, but not of pain. These symptoms appeared to point to an extension of the condition to the right leg. The arms had never been affected. Blood examination on this day revealed nothing noteworthy.

Red cells	4,535,000 per c.mm.
Haemoglobin	90 per cent.
Colour index	1
White cells	5,800 per c.mm.
Blood platelets	363,000 (that is, 100 to 1,250 red cells)

No increase in the fragility of the red cells was present.

Differential count (250 cells counted):

Polymorphonuclears	54.8 per cent.
Lymphocytes	37.2 ,,
Large mononuclears and transitionals...	6.8 ,,
Eosinophils	0.8 ,,
Basophils	0.4 ,,

No abnormality was found in the white or red cells in stained films. No nucleated red cells were seen.

Naked-eye Appearance of Amputated Limb.

Much difficulty was experienced in the dissection of the main vessels owing to the great degree of chronic inflammatory thickening in their vicinity, which caused the venae comites and nerves to be matted together. They appeared like fibrous cords in places. The popliteal artery was occluded by a greyish *ante-mortem* thrombus. The vein was markedly thickened but not thrombosed. Both anterior and posterior tibial arteries were completely thrombosed. The thrombus, especially towards the middle of these vessels, appeared to be organized. One of the venae comites of the anterior tibial artery contained some *ante-mortem* clot, but those of the posterior tibial did not. All the veins were thickened, and the surrounding structures were bound together by fibrous tissue, possibly from an associated periarteritis. The clot in the anterior tibial artery extended down to the commencement of the dorsalis pedis artery, the lumen of which was patent.

Histological Appearances of the Blood Vessels.

The affected peripheral vessels—the popliteal and anterior and posterior tibial arteries—showed completely organized thrombi in their lumina, some of which were partially recanalized. Marked histological changes occurred in all the coats.

The Popliteal Artery.—The vasa vasorum showed endarteritis obliterans (Fig. 1), and around them was distinct infiltration of cells of lymphocytic type, including definite plasma cells. The tissues in the immediate vicinity showed fibrous overgrowth. In the media a degree of fibrosis with interruption of the continuity of the muscle and elastic fibres, dilatation of vasa vasorum, and some lymphocytic infiltration was present. The internal elastic lamina was reduplicated in places, and interrupted by small thin-walled vessels passing into the clot. The intima was merged into clot by the process of organization. The thrombus, which occupied the whole lumen, was densely fibrous and completely organized. Between the fibres were deposited yellowish granules of altered blood pigment, and some of the newly formed capillaries had developed into quite large channels.

The Anterior Tibial Artery.—Sections were examined from the upper, middle, and lower ends of this vessel, and from one of its branches. The changes were more advanced in the upper end (Fig. 2), and were similar to those described in the popliteal artery. The wall of the vessel, however, showed much more fibrous thickening, and the vasa vasorum were more dilated. The periarteritis was more prominent. In the middle and lower ends, in addition to the appearances previously described, the adventitia showed a greater degree of cellular infiltration, and throughout the media were foci of epithelioid cells with pale vesicular nuclei and abundant protoplasm, and numerous multinucleated giant cells, with nuclei arranged around their peripheral parts (Fig. 3). These were external to the internal elastic laminae (Fig. 4). A marked degree of lymphocytic infiltration, especially around the vasa vasorum and at the margins of the foci, was present. The thrombus presented the same features as are described above, but just above the ankle-joint in a few places some small calcareous deposits were seen. There was also one large dilated vessel in the clot; its wall, however, was composed only of endothelial cells.

The branch of the anterior tibial artery showed a similar appearance to that described above, but no giant cells were seen. The thrombus appeared to have receded from the wall and permitted canalization to take place; some red blood corpuscles were present in its lumen.

No thrombus was present in the lumen of the anterior tibial artery at its junction with the dorsalis pedis artery. The adventitia only showed a slight degree of periarteritis; the vasa vasorum in media were distended, and only a slight degree of fibrosis was present; lymphocytic infiltration was not marked; the intima showed distinct fibrous thickening.

Sections taken from two separate parts of the posterior tibial artery, one higher up in the course of the vessel than the other, showed the lumen to be more or less closed by an organized thrombus, in the centre of which was present a new channel. The changes in the vessel wall were pronounced. The adventitia showed marked periarteritis with endarteritis obliterans of the vasa vasorum, lymphocytic accumulations, and occasional focal areas of epithelioid cells and scanty giant cells. The tissues in the vicinity were greatly fibrosed. While lymphocytic infiltration was present in the media, no giant cells were seen. The vasa vasorum were greatly dilated, and the muscle and elastic fibres much atrophied and replaced by fibrous tissue. The internal elastic lamina shows reduplication in places. The intima merged into thrombus, but appeared thickened by fibrous overgrowth. The thrombus had been completely organized by a cellular granulation tissue, and there was a large central opening present, which may possibly be due to recanalization, as in one of the sections it appeared to extend to the intima. This canalization extended almost the whole length of the vessel (Fig. 5). One of the branches showed marked intimal proliferation almost obliterating the lumen, and another branch was occluded by an organized thrombus similar to that previously described.

Sections from all the arteries, particularly where giant cell foci were present, were stained for tubercle bacilli, but, notwithstanding an exhaustive search, none could be detected. Other sections were stained by Levaditi's method for the detection of *Spirochaeta pallida*, but none were discovered.

Histological Appearances of the Veins.

The veins all showed some fibrous thickening of their walls, especially internal to the internal elastic lamina (Fig. 6). Lymphocytic infiltration and endarteritis obliterans of the vasa vasorum were not marked. The popliteal vein and venae comites of the posterior tibial artery were not thrombosed, but one of the venae comites of the anterior tibial artery contained a thrombus composed of fibrin, leucocytes, and red blood corpuscles, which showed early organization at one point.

Histological Appearances of the Nerves.

Both the anterior and posterior tibial nerves were the seat of perineural fibrous thickening, and the fibrosis extended between the various nerve bundles and between individual nerve fibres which appeared atrophied. In places fat could be demonstrated in the nerve fibres.

While the symptoms and appearances described in this case are identical with thrombo-angiitis obliterans occurring in the young subject, syphilis apparently plays no part as an etiological factor in that disease, and no spirochaetes have been demonstrated (Buerger).[1] In Perla's[2] series of 41 cases 36 gave a negative Wassermann reaction. The term "thrombo-angiitis obliterans" was first employed in 1908 by Buerger, who gave a detailed description of the disease from an examination of 38 cases, but it has been described under various names—such as pre-senile gangrene, non-syphilitic obliterative endarteritis of the Jews, obliterative endarteritis of the young, and endophlebitis and endarteritis, etc., by many of the earlier writers. Russian, Polish, and Rumanian Jews, it is said, are most generally affected. Perla found 41 cases, all Jews, out of 10,000 cases in the records of the Montefiore Hospital, New York, but states that no conclusion can be drawn from this, as 95 per cent. of all the patients there are Jews. Other authors have reported cases among Turks, Chinese, Koreans, and Japanese. The average age of onset is about 30 years, and all the recorded cases have been males; 10 of Perla's cases were tailors. Buerger found the left leg the first to be affected, but Perla the right leg in the largest number of his cases. All the limbs, however, may be affected. Perla described a case occurring in the aorta and coronary arteries as well as in the peripheral vessels of both legs. The disease in all cases originates in the smaller vessels, such as the dorsalis pedis artery, and ascends to the vessels above. The capillaries of the extremity remain free. Professor C. F. M. Saint of Capetown University informs us that he has seen a considerable number of these cases in South Africa in recent years; in certain cases the disease involved both upper and lower extremities.

The histological appearances of the present case show a condition of thrombo-angiitis obliterans with an associated phlebo-sclerosis or phlebo-thrombo-sclerosis, which would appear, in view of the positive Wassermann reaction and the exclusion of other causes, to be of syphilitic nature. Tuberculosis is reasonably excluded from the absence of tuberculous lesions elsewhere. There was no evidence of a generalized miliary tuberculosis or of a tuberculous lesion in the immediate neighbourhood from which direct infiltration could arise. As has already been stated, no tubercle bacilli were detected in the lesions. Such extensive giant cell formation as was present in our case is uncommon in the smaller arteries in syphilis. Buerger described giant cell formation as occurring in the intima, internal to the elastic lamina, and also in the thrombus, and regarded these cells as probably phagocytes assisting in the process of organization. No giant cells were present in any of Perla's cases. It is possible that some of Buerger's cases were of syphilitic origin, as no Wassermann tests were performed, the disease having been excluded on the ground that no spirochaetes were found.

The condition is distinguished from gangrene due to injury, with resulting thrombosis, and thermal gangrene following prolonged exposure to extreme cold, by the fact that these develop in forty-eight hours. The absence of sugar in the urine excludes diabetic gangrene. In arterio-sclerotic endarteritis obliterans the vasomotor phenomena, blanching and hyperaemia, are infrequent, and gangrene supervenes early and progresses more rapidly. Again, physical manifestations of impaired circulation are few prior to the onset of gangrene. Raynaud's disease is distinguished by its sudden onset with local syncope or regional ischaemia, involving the fingers, more rarely the toes and other parts; by short duration of sensory and vascular manifestations; their intermittent character and absence of arterial occlusion between the attacks.

The changes in the vessel walls in the present case would account for the thrombus formation with all the other related symptoms, gangrene, etc., and the sclerosis of the nerves for the atrophic disturbances. The feature of such cases is the slow progressive thrombus formation, with periods of remission of symptoms and the comparatively late onset of gangrene.

We have difficulty in accepting Buerger's view of a primary thrombosis with secondary change in the vessel wall. It seems more probable that the toxic agent which has caused the condition set up the changes in the vessel wall primarily and that the thrombosis occurred secondarily. No doubt when existing thrombosis has altered the current of blood in an artery abnormal eddies may precipitate thrombosis in other parts of the vessel where there may be no obvious disease in its walls.

The thrombosis in the present case would appear to have originated in the popliteal artery and to have spread progressively downwards to the anterior and posterior tibial arteries, rather than to have ascended from below.

Perla agrees that luetic endarteritis, leading to occlusion of the peripheral arteries of the extremities, while rare, can only be distinguished from thrombo-angiitis obliterans by the presence of other evidences of syphilis.

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LIPIODOL IN PULMONARY DIAGNOSIS: ITS USES AND LIMITATIONS.

(With Special Plate.)

BY

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LIPIODOL, a compound of iodine and oil (poppy seed) introduced as a diagnostic aid by J. Forestier, is non-irritant to the tissues of the body and opaque to the *x* rays*; when injected into the bronchial tree it will flow to the utmost limit of the ramifications and fill the alveoli, rendering both opaque and clear cut. It might be thought, therefore, that by its use bronchiectatic and emphysematous dilatation would be seen, lung cavities demarcated, the position of lung abscesses determined, the site of a broncho-pleural fistula demonstrated, and the existence of a foreign body in the bronchus or a tumour shown; that we should be able to distinguish between an abscess, an old empyema cavity with a fistulous opening into the lung, and bronchiectasis—a problem which not infrequently confronts us; we might also expect to diagnose with greater ease conditions which are notoriously difficult in the early stages—such, for example, as new growths—and be able to assess the significance of the constant clicking basal râles that from time to time puzzle us. How far this expectation has been realized we shall endeavour to show by the cases described below. We have injected lipiodol in over fifty cases at the City of London Hospital for Diseases of the Heart and Lungs, Victoria Park, and it will be seen that while in some instances information of great value was obtained, in others no help was given; or the information obtained was sometimes of a negative character, by which is meant that the examination with lipiodol having excluded bronchiectasis we are driven to search for other conditions which give rise to a similar clinical syndrome.

Methods of Injection.

Several routes for injecting the lipiodol have been used by different workers: (1) through the crico-thyroid membrane; (2) through the trachea below the isthmus of the thyroid gland; (3) the bronchoscopic route; and (4) the transglottic, by means of a laryngeal syringe; a rubber tube extension is sometimes employed, or a weighted catheter which can be passed into the right or left bronchus at will. We have used the first method almost exclusively.

* See BRITISH MEDICAL JOURNAL, 1923, vol. ii, p. 214.

FIG. 1.—Popliteal artery, showing occlusion of lumen by an organized thrombus. The adventitia shows endarteritis obliterans of vasa vasorum with some lymphocytic infiltration and fibrous overgrowth of tissues in vicinity. A degree of fibrosis with dilatation of vasa vasorum and extension of thin-walled vessels into thrombus is present in media. The thrombus is densely fibrous and completely organized, and between the fibres are deposited yellowish granules of altered blood pigment. (× 15.)

FIG. 2.—Anterior tibial artery, upper end, showing similar condition to that described in the popliteal artery. (× 6.)

FIG. 3.—Anterior tibial artery, middle and lower ends, showing a condition similar to that in the popliteal artery. In addition marked lymphocytic infiltration of media and foci of epithelioid and giant cells are present. The vessel wall is situated above and the organized thrombus below. (× 45.)

FIG. 4.—Wall of anterior tibial artery, showing the giant cells situated external to internal elastic lamina, which is folded in places. The vessel wall is situated above and the thrombus below. (× 60.)

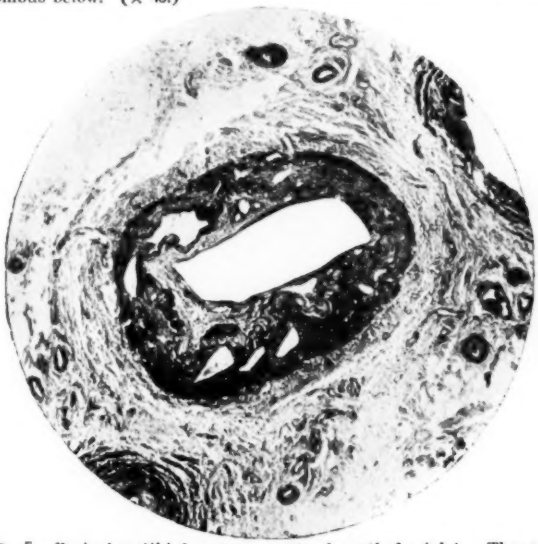

FIG. 5.—Posterior tibial artery, stained methyl violet. The same features as in other sections are present, but the thrombus shows a large central channel which extends to the intima at one area. The internal elastic lamina is folded. (× 20.)

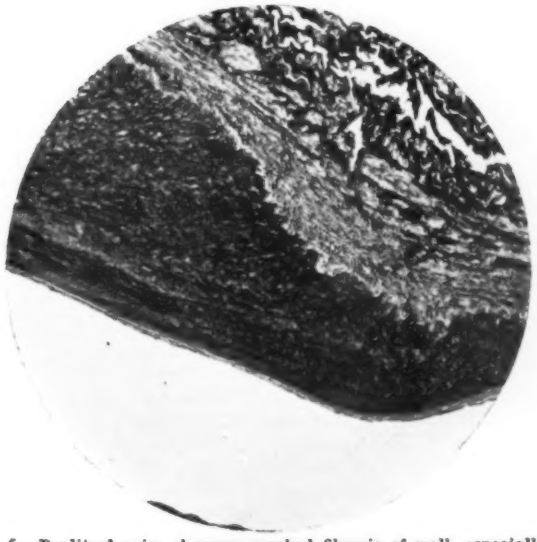

FIG. 6.—Popliteal vein, showing marked fibrosis of wall, especially of intima. (× 60.)

FIG. 1.—Normal.

FIG. 2.—Normal.

FIG. 3.—Bronchiectasis of upper lobes. Case I.

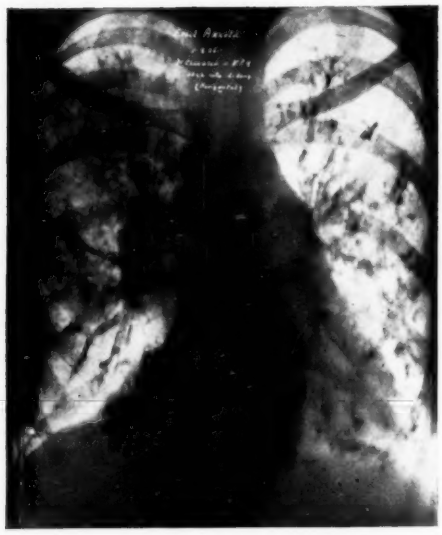

FIG. 4.—Glove-finger type of bronchiectasis. Case II.

FIG. 5.—Chronic bronchitis and emphysema. Case III.

FIG. 6.—Chronic lung abscess. Case IV.

Technique.

A. *Apparatus.*—(1) A 20 c.cm. glass syringe. (2) A special needle made by Allen and Hanburys (bluntly bevelled, 3/4 in. in length, No. 15 Birmingham wire gauge), or a small trocar and cannula which has been made for us by the same firm,† with a bore of one millimetre only, which is quite sufficient to permit the passage of the oil; or the curved trocar and cannula used by Dr. Armand Delille, like a minute tracheotomy tube, which can be fastened in position by tapes round the neck. (3) Syringe and needles for novocain and cocaine.

B. *Lipiodol.*—Temperature raised to 100° F. by immersing the metallic container in hot water. This decreases the viscosity, and allows the oil to flow easily.

C. *Patient.*—(1) Cocaine idiosyncrasy should be tested beforehand by giving an eighth of a grain of cocaine either subcutaneously or by mouth. (2) No food for three hours before the injection. (3) Morphine for adults (one-sixth of a grain hypodermically); tinct. camph. co. in the case of children is perhaps advisable if cough is troublesome. (4) The patient is propped up by pillows over which the head is extended in order to expose the crico-thyroid region. The operator stands on the right side of the patient. (5) The site is prepared with spirit or ether, and not with iodine, as this is opaque to the *x* rays.

D. *Anaesthesia.*—(1) A few minims of 2 per cent. novocain are injected intradermally over the crico-thyroid space (larger quantities may obscure the landmarks). (2) Into the trachea 0.5 c.cm. of a 5 per cent. solution of cocaine is injected, a stouter needle being used to avoid the possibility of the needle breaking should the patient cough. The thyroid cartilage is steadied by the left hand, and the needle inserted through the crico-thyroid membrane. To make sure that the needle is in the larynx air should be drawn into the syringe. The cocaine is then injected slowly, but should the patient cough it must be injected quickly, and the needle rapidly withdrawn.

E. *Injection of Lipiodol.*—Having filled the syringe the needle is introduced through the crico-thyroid membrane. The piston is then withdrawn, and air should enter freely. This test is essential, and should be repeated during the injection. The position of the patient may now be altered according to the part of the lung to be injected. If this is the right lower lobe the above position is satisfactory, as the lipiodol tends to gravitate into the right bronchus; if the left side, the patient should be gently inclined to the left; if the apex, the patient should be placed more horizontally. After the injection the shoulders can be lowered still more. During the injection the patient is told to breathe deeply through the mouth and to suppress swallowing movements and cough. We have injected between 15 and 20 c.cm. of lipiodol as a rule. The procedure should take about five to ten minutes. After the injection any lipiodol on the skin should be wiped off with ether, a collodion dressing applied, and the patient should be radiographed as quickly as possible, both in the horizontal and vertical positions. The manipulation of the patient should be gentle, as otherwise coughing may be induced and part of the lipiodol may be dislodged before an *x*-ray picture has been obtained.

Effect on the Patient.

Using, as we have done, a very small amount of cocaine solution there is very little, if any, discomfort. Sometimes there is a feeling of constriction; this is relieved by a sip of water. The injection of the oil appears to cause no discomfort, but the patient may complain occasionally of the taste and smell of the lipiodol. In sensitive subjects the symptoms of iodism may occur. This happened in one of the Victoria Park cases, when a characteristic rash appeared. In another case an attack of asthma seemed to be precipitated. Apart from these we have seen no harmful effects, although over fifty injections have been made.

The Normal.

A knowledge of the normal picture is obviously the first essential. Figs. 1 and 2 we consider normal.

The following are illustrative cases.

CASE I.—*Early Bronchiectasis.* (Fig. 3.)

A girl, aged 12, who had been treated for two or three years as a case of tuberculosis owing to cough, expectoration, and haemoptysis, and abnormal signs over the right upper lobes; tubercle bacilli, however, were never found in the sputum or the faeces. Lipiodol injection showed the condition to be bronchiectasis.

CASE II.—*Gross Bronchiectasis.* (Fig. 4.)

A woman, aged 26, when between the ages of 6 and 8 had pneumonia on three occasions. At the age of 9 she was treated in hospital for bronchiectasis. On the present occasion she was admitted complaining of increased cough and sputum since an attack of "congestion of the lungs," eighteen months previously. Her fingers and toes were clubbed. She was expectorating 12 to 20 ounces of offensive sputum in the day. A radiogram showed a large dense shadow at the right hilus, and an opacity above the inner part of the right diaphragm. The bases were fairly clear. Two lipiodol injections were given; Fig. 4 shows the picture after the second. Large masses of lipiodol are seen at both bases, and the gloved finger type of bilateral bronchiectasis revealed.

† Latterly one of us (F. G. C.) has used this trocar and cannula exclusively.

CASE III.—*Bronchitis and Emphysema.* (Fig. 5.)

A man, aged 29, was severely gassed in 1917, and had since complained of recurrent attacks of bronchitis. The chest was barrel-shaped, and there were signs indicative of bronchitis and emphysema. No tubercle bacilli were found in the sputum. A radiogram showed increased striations at the right base. An injection of 18 c.cm. of lipiodol was given through the crico-thyroid membrane. Fig. 5 shows abrupt terminations of the outline of several bronchi and a peculiar flocculent distribution of lipiodol in the alveoli.

CASE IV.—*Chronic Lung Abscess.* (Fig. 6.)

A boy, aged 12, was sent by Dr. Trower to Charing Cross Hospital. He had had pneumonia at the age of 6, and since then had always had a cough. Three months before admission he had "influenza," and since this illness the cough had become more troublesome and the sputum had increased and had become offensive. The fingers were clubbed. Anteriorly the right side of the chest was impaired to percussion, and the breath sounds were harsh but distant. Posteriorly similar signs were obtained over a more limited area below the angle of the right scapula. The daily sputum amounted to 10 ounces, and had an exceedingly offensive odour. No tubercle bacilli were found, although repeated examinations were made. A radiogram showed an opacity in the mid-zone and base of the right lung. Towards the outer part of the centre of this shadow there was a circular area of lesser density. Lipiodol was injected. This went almost entirely into the left lung, and showed a normal bronchial and alveolar outline. Bronchoscopy was therefore performed by Mr. Davis, and an attempt made to fill the right bronchial tree with lipiodol. Again it failed, but Fig. 6 shows the substance outlining the bronchi up to the diseased area, but going no further. The injection thus excluded bronchiectasis, but failed to differentiate between pulmonary abscess and empyema with a broncho-pleural fistula. The case, however, seemed to be one urgently demanding operation. This was done by Mr. Clogg, and a large pulmonary abscess cavity was found, which was successfully drained.

CASE V.—*Empyema Cavity with Broncho-pleural Fistula.*

We were anxious to know if lipiodol would demonstrate a broncho-pleural fistula. A case of old chronic empyema of three years' standing was therefore taken, in which 20 ounces of offensive pus had been coughed up one week before admission to hospital. The lipiodol did not appear, in this case, to enter the old empyema cavity.

CASE VI.—*Contracted Left Lung. ? Pressure on Main Bronchus.*

A man, aged 49, had had repeated attacks of malaria and bronchitis; he had lost 2 st. in weight. He was admitted with bronchitis and bronchopneumonia, and the heart was displaced to the left. After the acute attack subsided he was left with dullness all over the left side, with bronchial breathing, and absence of adventitious sounds. The heart was in the left axilla. The *x*-ray picture showed a dense opacity all over the left side, with the right lung invading the left side of the thorax and the heart drawn to the left axilla; it gave no clue to the cause of the condition. The Wassermann test was strongly positive. The diagnosis of pressure on the left main bronchus by aneurysm or gumma suggested itself, and lipiodol was injected in the hope that further light would be thrown on the case. A very interesting picture was obtained. Through the opacity could be seen the denser shadow of the lipiodol; the main bronchus appeared to be immensely enlarged, as though flattened out; the bronchi springing from this were enlarged and blunt-ended; they appeared to be uniformly enlarged, but with no bronchiectatic dilatations, and ended abruptly without any of the usual alveolar arrangement of the lipiodol.

CASE VII.—*Diabetes and (?) Neoplasm of Lung.*

A man, aged 54, was admitted with diabetes, cough, occasional haemoptysis, and pain over the right side of the chest, which had been present for two months. There was slight clubbing of the fingers and dullness on percussion at the right base and absent breath sounds, but no adventitious sounds. There were no tubercle bacilli in the sputum. The radiogram showed a vague shadow, suggesting a possible growth. Lipiodol, however, freely entered this dull "silent" area and had a normal distribution, thus giving no help in the diagnosis.

CASE VIII.—*Bronchiectasis.*

A man, aged 53, in 1921 suddenly coughed up half a pint of stinking pus and collapsed. From this he recovered. In 1924 he had a large haemoptysis. In January, 1926, he again coughed up pus and fainted. He was brought to hospital; the chest was explored; a little pus was obtained, and an operation for empyema was performed. No empyema was discovered. A little later lipiodol was injected, and a bilateral bronchiectasis was revealed.

The Positive Findings.

In bronchiectasis we get positive evidence of dilatation of the bronchi. The picture appears to be pathognomonic and unequivocal (Figs. 2 and 3). It is the only positive method of proving the diagnosis. It is well known that, as a rule, the ordinary radiogram gives little help in diagnosing bronchiectasis. Either very little can be seen,

or the shadows thrown are similar to those obtained in many different pathological conditions, or the lesion may come behind the heart shadow. The first two points are demonstrated in Case I. Here the physical signs were like those of chronic tuberculosis, and the radiogram could be interpreted in various ways. Lipiodol injections proved the condition to be bronchiectasis. Frequently constant clicking râles are heard at one or both bases. If these are due to bronchiectasis we believe that proof positive can be obtained by the use of lipiodol.

Lipiodol will flow into a tuberculous cavity and outline it or fill it; but as a rule such cavities are obvious on the ordinary radiogram. It would be of value, however, in differentiating a large superficial tuberculous cavity from a localized pneumothorax. We have avoided injecting tuberculous cases as far as possible owing to unfavourable reactions having been reported.

Limitations.

Is there any other picture obtained after lipiodol injection which can be considered unequivocally pathognomonic? The answer is doubtful. Fig. 5 shows the picture obtained in a case of apparent chronic bronchitis and emphysema, and it is in accordance with the appearance described by the French writers on the subject. Frequently the information obtained is of a negative character. In cases of lung abscess and old empyema cavity it has been our experience that the lipiodol stops short at the periphery of the diseased area. This is shown in Fig. 6 (Case IV). We have seen the same thing in other cases.

Apparently, therefore, it would not help us to distinguish between a superficial non-tuberculous lung cavity and a localized pneumothorax, or between a pulmonary abscess and an old empyema cavity. What is obtained, however, is the knowledge that bronchiectasis does not exist, and this may be of value both in diagnosis and treatment. In Case IV lipiodol was also injected through the drainage tube into the abscess cavity; it outlined the lower part of the cavity, and this was all. None appeared to go through the bronchi.

We have injected lipiodol in cases of new growth of the lung, old empyema cavity, tuberculosis, and other conditions mentioned above, but apart from the filling of a tuberculous cavity no special help was given, nor did we obtain what may be called a pathognomonic picture. By this we do not mean to suggest that the method has failed. With an enlarged experience, both in the number of cases and in interpretation, more knowledge may be obtained. It would seem that a distortion or misplacement of a bronchus ought to be made manifest. All that we say is that, except in the cases mentioned, we have not hitherto obtained any strikingly helpful radiograms. Case VI, however, certainly gave a distinctive picture, but though tending to confirm a tentative diagnosis based on inferential reasoning, it did not give positive evidence of the actual underlying cause of the condition.

Summary.

1. Lipiodol injection will apparently enable us to diagnose and localize bronchiectatic dilatations with certainty: moreover, in many cases it is the only method of proving the diagnosis.

2. It enables us to distinguish bronchiectasis from lung abscess, from empyema with a broncho-pleural fistula, and from tuberculosis.

3. With regard to the diagnosis of lung abscess and empyema with a pleural fistula, the help is of a negative character. The lipiodol does not appear to enter the pulmonary abscess, but stops short of it; nor does it easily flow through the bronchial fistula into an empyema cavity.

4. Tuberculous cavities fill readily, but it has been suggested that injections are undesirable in cases of pulmonary tuberculosis.

5. In our opinion the method described is simple and harmless, giving invaluable help in certain cases, but possessing limitations.

We are indebted to Drs. Leggett, J. V. Sparkes, and Russell Reynolds for the skiagrams, especially to Dr. Sparkes, by whom most of the radiological work was done.

"VOLVULUS NEONATORUM."

BY

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THE following case appears worthy of record, as it is, so far as I know, the first of its kind to be recognized from clinical observation and to be successfully treated by operation. The case was one of the disease which I described in 1923 as "volvulus neonatorum."[1] In this condition the normal rotation of the midgut fails to occur during development. In consequence of this the mesentery fails to acquire its secondary attachment to the posterior abdominal wall, and the entire small intestine and right half of the colon depend as a mass from a narrow pedicle at the origin of the superior mesenteric artery. The condition obviously predisposes to a volvulus of this enormous extent of bowel. The accident usually occurs within a few days of birth—probably as a result of the first peristaltic efforts of the intestine in response to feeding. The volvulus is peculiar in that the third part of the duodenum is acutely obstructed by being tightly twisted round the pedicle while the less fixed colon does not suffer. Since the involved bowel has a free exit below through the colon, it does not become distended, but collapsed. The blood supply is but slightly impaired, causing only a moderate cyanosis of the intestinal coils.

Of the diagnosis I wrote as follows:

"In these cases I think a correct diagnosis is . . . possible . . . The child is apparently normal when born and remains so for some days. Meconium is passed, and if the onset of the volvulus has allowed time, food residue appears in the motions in due course on the third or fourth day. With the onset of volvulus there may be shock, though this was observed in one case only. Vomiting begins early . . . The vomit is soon deeply stained with bile, for the obstruction lies below the duodenal papilla. . . . The upper half of the abdomen becomes distended by the stomach and duodenum, while the lower part becomes recessed from collapse of the intestines. . . . Melaena may or may not be evident."

It was pointed out that the above syndrome defined the condition clearly from all other possible causes of alimentary obstruction of the first few weeks of life. It was suggested "that reduction of the volvulus would be the most hopeful line of treatment. The intestinal mass would have to be delivered and untwisted."

A female infant, aged 8 days, was admitted to the Royal Edinburgh Hospital for Sick Children on May 20th, 1926, having been referred to us by Dr. Sharp of Musselburgh on account of intestinal obstruction. The birth was natural. Abundant meconium passed. Natural light yellow food residue appeared in the motions on the third day, and a normal motion was passed on the morning of the fourth day. The baby took the breast well until the fourth day, when she had a sudden fit of crying, holding the breath, drawing up the legs—apparent abdominal pain. There was no pallor. From this time she refused to suck. She vomited with increasing frequency, at first clear fluid, then yellowish, and latterly dark green flaky material. There had been complete constipation. There was little further pain until the morning of admission, when it seemed to recur and persist. On the morning of admission a small quantity of blood-stained mucus was passed per anum.

Examination.—A well developed infant; the eyes sunken, the mouth dry, the face drawn, and the skin generally lax and folded from rapid dehydration. A severe degree of toxaemia was obviously present. The upper part of the abdomen was prominent from gastric and duodenal dilatation, the lower part was flat. Small quantities of dark green flaky material were regurgitated at intervals of a few minutes. The rectum contained traces of blood-stained mucus.

Provisional Diagnosis.—From the clearly defined sequence of events of the history, and the facts observed on examination, a confident diagnosis of "volvulus neonatorum" secondary to an error of intestinal rotation and fixation was made. It will be noted that this was based on evidence of acute obstruction to the duodenum below the bile papilla and of post-natal origin.

A large continuous subcutaneous infusion of glucose-saline solution was administered, operation being postponed for four hours in order to re-establish the fluid and carbohydrate equilibrium.

Operation.—Ether anaesthesia. Right paramedian incision. The stomach and duodenum were enormously distended with fluid and gas, the pylorus being widely dilated. The distension ended abruptly where the third part of the duodenum crossed in *front* of the superior mesenteric vessels and was sharply twisted round them in a clockwise direction. In this case the caecum had crossed the mid-line from left to right and was loosely adherent over the right kidney (incomplete or "mal-rotation"). The lowest coil of the ileum with its free mesentery was loosely

wound around the pedicle of the volvulus and was free from constriction. The entire jejunum and ileum were implicated in the volvulus. They presented an extraordinary appearance, being deeply cyanosed, quite collapsed and empty, and massed into a compact bunch, which depended freely from the narrow pedicle of the superior mesenteric axis. The mass of congested, collapsed bowel could be most accurately likened to a conglomeration of bluish earthworms. The mass was rotated in an anti-clockwise direction through about 360 degrees. A few light, recent adhesions were present about the constricted portion of the duodenum; these were readily separated and permitted the organ to come into its natural position behind the mesenteric root. So soon as the constriction of the duodenum was relieved by untwisting the volvulus, the gaseous and fluid contents of the dilated stomach and upper duodenum passed rapidly down the jejunum and had entered the ileum before the bowels could be returned to the abdomen. Since the infant was seriously ill from four days of acute duodenal obstruction, it was thought unwise to prolong the operation by fixing the replaced intestines. It was hoped that this would occur naturally in the course of post-natal development. The abdomen was closed. The operation had been a very easy and rapid one.

Progress.—No further vomiting occurred, and the infant took the bottle well within three hours of operation. An uninterrupted convalescence ensued and she was discharged from hospital on the fourteenth day. She has been seen at regular intervals since. She has progressed quite normally; there has been no vomiting, no evidence of abdominal pain, and a steady gain in weight. At the last report (November 23rd, 1926) the child appears a particularly robust little girl of 6 months, weighing 12 lb. 12 oz.

I regard this case with peculiar satisfaction, as it represents to me the outcome of former embryological and pathological researches in practical diagnosis and operative cure.

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HAEMATURIA FOLLOWING INSULIN INJECTIONS.

BY

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IN 1923 and 1924 I noted several cases of diabetes mellitus in which the use of insulin injected in the usual manner was associated with a transient haematuria. I could not trace any records of similar cases, and on inquiry of other physicians who had a large experience of insulin administration I did not get any corroborative information. While noting the facts I decided to await further confirmation, as apparently the occurrences were simply coincident and of no serious moment. Since then, over many hundreds of similar injections in private and hospital practice, and in many cases with large daily doses, I have never met with a similar experience. I have also been watching the literature of the subject for any reference to the occurrence of haematuria in similar circumstances, but without avail till in the *Epitome* of the BRITISH MEDICAL JOURNAL of October 23rd, 1926 (para. 364), I found J. Güdemann reported as having described a case of haematuria following insulin treatment. As the history of the case was there given it need not be repeated here. Güdemann referred to two other cases, and stated that all his own cases of haemorrhage after insulin treatment occurred in a period of four and a half years; he thinks it probable that haemorrhages after insulin treatment occur more frequently than has been believed hitherto.

As such occurrences have not apparently been noted in this country I wish to refer to three cases, in all of which a very transient haematuria was observed.

CASE I.

A boy, aged 13, was admitted to my ward on October 23rd, 1923, in a state of coma, and on that day he had 20 units of insulin on two occasions. He made a rapid recovery from coma, and next day felt very well, though he had very decided haematuria. Microscopic examination of the urine showed, in addition to blood corpuscles, a few hyaline casts. The haematuria cleared up completely within twenty-four hours, and did not recur, though he had regular daily doses of insulin during the remainder of his residence. He is still under regular supervision at intervals, and though regular doses of insulin have been given, no similar occurrence has been observed. He is well developed and sturdy.

CASE II.

A man, aged 32, with advanced diabetes, had three attacks of haematuria during one month. He started insulin treatment in my ward on September 20th, 1923, and was at one time having 50 units daily. He developed severe haematuria on October 30th, and had recurrences on November 5th and November 27th. On each occasion the attack persisted for a few days, was not associated with any discomfort or signs of kidney disease, and cleared up completely.

CASE III.

A man, aged 59, had marked diabetes, requiring a daily dose of 40 units over a prolonged period. In May, 1924, in a nursing home, he had an attack of haematuria lasting twenty-four hours. Here also there were no associated symptoms of renal disease, and no feelings of discomfort.

I am tempted to add a fourth case of haemorrhage in similar circumstances, though it was not haematuria.

The patient was a man, aged 73, who had suffered from diabetes for some time, but had not had insulin. When I saw him with his doctor on June 8th, 1924, he was on the verge of coma and became comatose before he reached the nursing home. With insulin in considerable doses he recovered consciousness completely, but four days thereafter he had a cerebral haemorrhage, with resultant hemiplegia, and died.

These cases all occurred within a period of about eight months, and, it is of interest to note, rather earlier than those referred to by Güdemann. I have no explanation to offer as to the cause of such haemorrhage, as the conditions of administration of the drug were at all times as nearly as possible the same, and, of course, in the cases in the ward others were having the same insulin without any haemorrhage. It would be interesting to know if other examples are on record of similar occurrences during insulin administration.

STUDY OF AN ANAEROBIC STREPTOCOCCUS.

BY

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ANAEROBIC streptococci have been described before, and according to Douglas's observations they were sufficiently common in war wounds to render anaerobic culture of pus so obtained a matter of practical importance.[1] But the occurrence of these organisms in civil practice in England is sufficiently rare to justify record.

The streptococcus now described was isolated from an abscess in the lumbar region. The films showed chains of eight to ten cocci; no other organism was seen, and an examination for tubercle bacilli by the Ellermann and Erlandsen concentration method was negative.

Cultural Features.

A serum nutrient agar slope was inoculated, but no growth followed. As it was assumed that the inoculation was at fault a second slope was used, with a like result. The pus was then put on a "plain" agar plate and incubated anaerobically. A profuse growth was obtained in eighteen hours. The colonies were round, discrete, and about 0.5 μ in diameter. On inoculating a slope from this plate and incubating it aerobically no growth was obtained. The anaerobic subcultures grew well. An aerobic culture made from the fifth anaerobic culture showed a feeble growth in twenty-four hours which did not improve with further incubation. This was the only aerobic culture obtained, as attempts to repeat aerobic cultivation from later anaerobic subcultures have all failed. The addition of serum to the agar plates does not seem to influence the growth. In plain agar stabs and in gelatin at 22° C. the organism grows as a granular line along the length of the stab. The gelatin is not liquefied.

It should be explained that unless otherwise stated all further descriptions of growth and fermentative reactions refer to anaerobic cultivation.

The organism rapidly lost its chain formation in artificial cultivation, and so was tested in tomato extract media.[2] A tube of tomato broth was inoculated from a nutrient beef broth culture that showed clumps only in films made from it. Next morning a thick turbidity was present in the tomato broth, and a film showed nothing but chains of 12 to 16 cocci. The same result was obtained with a tomato slope, except that the chains were a little shorter. The thickness of the growth in the broth and on the slopes has since proved that tomato extract is much the best medium for cultivating the organism. The individual cocci do not show any great tendency to produce involution forms. The organism is, of course, Gram-positive.

Fermentative Reactions.

No gas was produced with any sugar, but the acid production, when obtained, was sharp, appeared within twenty-four hours, and did not change with further incubation up to five days. Acid was

produced in glucose, maltose, saccharose, laevulose, raffinose, salicin, inulin, dextrin, galactose, isodulcite, and arabinose. No change occurred in lactose, mannite, dulcite, adonite, sorbite, or inosite. Litmus milk was unchanged after seven days' incubation.

Ehrlich's rosindol reaction was negative when tested on a six-day nutrient beef broth culture. It was not possible to examine the reaction in peptone water as the organism does not grow in this medium.

The streptococcus does not haemolyse blood, nor does it appear to have any reaction upon neutral red. It is not soluble in bile.

Vitality.

The vitality of the organism is not great. It lives in tomato broth for about ten days and for seven days in beef broth. It is killed by exposure to a temperature of 60° C. for fifteen minutes.

It is well known that certain strains of the enterococcus exhibit a preference for anaerobiosis when first isolated, but the present organism differs from the former in several important particulars. Its sugar reactions bear no resemblance to Dible's typical strain[3] nor to any of the three variants. A further and more important distinction is that the enterococcus has great vitality and is thermo-resistant.

These facts, coupled with the ability to form chains, justify us in regarding the organism as a true streptococcus.

Its further classification presents some difficulty, as it does not conform exactly to any of the standard varieties. It approximates most closely to *Streptococcus equinus*, but it ferments raffinose.

Its preference for anaerobic conditions of growth seems to be fairly inherent and is not lost by artificial cultivation, if I may judge by the fact that, although a feeble growth was obtained from a culture made from the fifth generation of anaerobic cultures, the power was not retained or passed on in further generations of subcultures.

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[2] Jenkins: Tomato Extract, *Journ. Path. and Bact.*, 1923, vol. xxvi, p. 116.
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EXCISION OF LARGE ANGIOMA OF THE LIVER IN A DIABETIC.

BY

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IT is becoming recognized that operations upon diabetics can be performed without undue risk, provided the glycosuria is in abeyance at the time of operation. I think that the following case may be of interest owing to the age of the patient, who had been suffering from diabetes for several years, the extensive nature of the operation, the absence of undue shock, and the uninterrupted recovery.

On June 17th, 1925, the patient, a maiden lady aged 76, was admitted under my care at a nursing home. She had been suffering from diabetes for several years, and the urine on a restricted, but not strict, diet contained at least 5 per cent. sugar.

She had a large hard globular myomatous uterus of about the size of a pregnancy in the sixth month, and what appeared to be a pedunculated myoma in the left hypochondrium. As she was suffering from considerable discomfort and pain in the lower limbs I had suggested that it might be advisable to remove the tumours. She was thin and looked frail, but was not emaciated. The specific gravity of the urine was 1040, and it contained 5 per cent. sugar. She was put upon a strict diet.

On June 19th the urine (sp. gr. 1020) contained a trace of sugar. On June 20th the administration hypodermically of 10 units of insulin once daily was begun. On June 23rd three doses of 10 units each were given. On June 24th the urine was quite free from sugar; insulin twice daily was begun. From this date to June 30th the urine continued to be free from sugar and the patient's condition was satisfactory.

Operation.

On June 30th, under chloroform anaesthesia as light as was possible, the abdomen was opened; the upper tumour was found to be a large dark purple lobulated mass attached to the lower edge of the left lobe of the liver by a peduncle of liver substance which was about 3½ inches broad and 1½ inches in thickness. The transverse colon was lying between the tumour and the big uterine myoma.

I removed the liver tumour by cutting through the pedicle and suturing the anterior to the posterior edge. The haemorrhage was very insignificant, only one artery in the middle of the pedicle had to be secured, and the excision was rapidly performed. I then removed the uterine myomatous mass by amputating through the cervix in the usual manner. The liver tumour, which was a cavernous angioma, weighed 1 lb. The myomatous uterus, which was partially calcified, weighed 3 lb. The whole operation took less than an hour. There was very little haemorrhage and no perceptible shock.

The patient had a fairly comfortable night, but vomited several times; she was given sips of water and weak tea. Next day she felt comfortable except for a tendency to vomiting; the urine contained 5 per cent. sugar, and was loaded with acetone; rectal saline and sodium bicarbonate were given. On July 2nd she was given feeds of water, coffee and toast, milk, diabetic bread, cauliflower, and 15 units of insulin was administered during the day. She felt much better; the sugar was much less, but the acetone was still abundant; there was no aceto-acetic acid. Next day milk was added to the diet, and on and after July 4th 15 units of insulin was given three times daily and more liberal diet. The acetone was much less. On July 7th she was allowed a fairly liberal diet, including custard, and mutton or sweetbread. Neither sugar nor acetone was present in the urine. Insulin was reduced to 12 units three times daily on July 9th, and this quantity was given twice daily. She left the nursing home eighteen days after operation. She felt well and comfortable, and the urine was free from acetone, but sometimes contained a little sugar.

The patient is now, eighteen months after the operation, in fairly good health, but as she is not careful about the diet the urine constantly contains sugar.

The tumour of the liver was a cavernous angioma of the kind described as due to dilatation of existing blood channels and atrophy of liver cells. These tumours may be multiple, but are more often single. The edge of the liver near the falciform ligament is not an uncommon situation, and they are sometimes pedunculated, as in this case. A microscopical section showed large intercommunicating cavernous spaces lined with endothelium and separated by fibrous tissue; no trace of liver tissue could be seen except in the pedicle.

Death has been known to occur from rupture of an angioma of the liver, and a few cases have been removed by operation. But the condition seems to be uncommon, though possibly less so than might be expected from the small number of cases recorded.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

AN OCCUPATIONAL SWELLING.

A PROFESSIONAL violinist was brought to consult me about a swelling below the angle of the jaw on the left side. It had been noticed for the last three or four years, and had increased slowly in size, but gave rise to no pain or discomfort.

The appearance of the swelling, which is shown in the accompanying photograph, suggested an enlargement of the tonsillar lymph gland. However, the enlargement was entirely due to a thickening in the subcutaneous tissues, adherent to the overlying skin, but freely movable over the deeper structures. It was firm, had no definite edge, did not fluctuate, and was not translucent. The overlying skin was normal, and there was no enlargement of the lymphatic or salivary glands on either side. The tonsils were small, and healthy.

This is apparently a fibro-fatty pad developed in response to repeated pressure, analogous to that which is seen on the shoulders of deal porters. It is situated exactly on the area of skin which rests upon the edge of the violin when this is steadied between the angle of the jaw and the left clavicle. I have not seen a description of this condition.

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THE TEMPERATURE IN PULMONARY TUBERCULOSIS.

As there is some doubt whether the terminal temperature in pulmonary tubercle is tuberculous or septic, may I be allowed to quote three cases which appear to support the former view?

Case 1.—The most typical case of a swinging temperature I have seen was in the terminal stages of tuberculosis in a patient in the Royal Victoria Infirmary. The sputum was swarming with tubercle bacilli, whilst septic organisms were few.

Case 2.—An adult patient at the Stannington Sanatorium had a persisting subnormal temperature up to her death. Here the septic organisms were numerous, whilst the tubercle bacilli were few.

Case 3.—On September 18th, 1926, a man, aged 31, was admitted to the Harton Hospital, South Shields, with marked signs over the left upper lobe in front. The expansion was limited, the percussion note impaired, and marked pleural and pulmonary crepitations were present. He is losing weight, has a distressing cough, with abundant sputum, yet the temperature from September 18th to November 7th, night and morning, has been along the line of 97°. Only on nine occasions in seven weeks has it risen above 97°, and only once has it reached 98°. The respiration rate has averaged 24 night and morning, whilst the pulse rate has varied between 76 and 96. Dr. A. J. Slade reported on the sputum as follows: "Whilst the tubercle bacilli are one per ten fields, such fields contain cocci of pneumococci and staphylococci types which are too numerous to count."

The temperature of pulmonary tuberculosis would therefore seem to depend upon the numbers and activity of the tubercle bacillus, whilst the terminal temperature is probably due to excess of tuberculin or other products of the tubercle bacilli.

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TRAUMATIC ULCERATION OF THE AORTA.

THE following case seems of sufficient interest to be placed on record.

A native woman, aged 28, was admitted to Omdurman Civil Hospital on June 3rd, 1926, complaining of pain in the region of the right lower chest, in which region she had been struck by her husband three days previously. She stated that the pain commenced shortly after receiving the blow; she "thought that she had swallowed a small bone" five days before admission to hospital. The only signs presented were some tenderness to pressure over the tip of the sixth rib, which was fractured, and slight dullness over the right base around the site of the blow. On June 5th the patient had a sudden haemoptysis and died. The Syrian medical officer informed the police, and the husband was placed under arrest.

Post-mortem Examination.—The base of the right lung was found to be congested, with marked discoloration at the site of the fracture. A meat bone, one square inch in size, was discovered impacted in the oesophagus at the level of the bifurcation of the trachea. The oesophagus in the immediate vicinity was grey-black in colour, and ulceration extended through its coats into the arch of the aorta. Death was due to haemorrhage following ulceration into the lumen of the vessel.

The case is of interest in that the woman, other than "thinking" that she had swallowed a bone seven days before her death, produced no symptoms indicative of the presence of a foreign body in the oesophagus. In view of the *post-mortem* findings the husband was, needless to say, released.

Khartoum. JOHN SIMONS.

MELAENA NEONATORUM.

THE following cases occurred in my practice here, and are of interest on account of the rarity of the condition.

A primipara, aged 30, at the beginning of February last gave birth to a particularly fine male child; it had been expected in November. On the day after its birth it vomited bright red streaks of blood, and the stools were noticed to be black and tarry. The child seemed extremely ill, and its condition looked so urgent that I administered 0.25 c.cm. of pituitrin, which seemed to act like a charm; the bleeding at once ceased and the child became well.

The second case occurred last October. A primipara, aged 37, gave birth to a healthy male child; on the fourth day thereafter signs of intracranial pressure appeared and the stools became black. The following mixture was given: gelatin 30 grains, sodium chloride 2 grains, water to 3 oz., 1 drachm every hour, together with 1 minim of adrenaline solution 1 in 1,000 every hour until three doses were taken, and then every two hours for another two doses. On the sixth day 10 c.cm. of blood were taken from the father's arm and injected intramuscularly; this was repeated on four successive days, when the child became well. This child was also expected six weeks earlier.

Stornoway. J. G. GRANT.

Reports of Societies.

THROMBO-ANGIITIS OBLITERANS.

AT a meeting of the Section of Surgery of the Royal Academy of Medicine in Ireland on November 26th, 1926, Mr. R. C. B. MAUNSELL in the chair, Sir W. I. DE COURCY WHEELER read a paper on thrombo-angiitis obliterans, which is printed at page 225.

Dr. T. T. O'FARRELL showed a series of lantern slides illustrating the various points mentioned by Sir William Wheeler, and added that the trouble in this case had started in the great toe, and had spread upwards. The tissues were oedematous, and there was some exudation of blood. The upper part of the popliteal artery was normal, but the lower part was thrombosed. Most of the arteries of the limbs, with the exception of the peroneal, had fibrosis of the muscular coat, and several of the veins showed commencing calcification. Attempts at canalization of the clot were found here and there in the tibial vessels.

Mr. R. C. B. MAUNSELL said that he was interested in the suggestion made by Sir William Wheeler that possibly very heavy cigarette smoking had something to do with the disease; he personally thought that smoking was now too common a thing to be attacked and put down as the possible cause of any disease. Both the patients described had been Irishmen, but they had both been abroad; this suggested to him that the infection might be bacterial. He referred to a communication of a similar sort made to the Academy some years previously by Mr. Lane Joynt, but in this case the veins had been thrombosed all over the body.

Mr. C. J. MACAULEY asked if, in the first case described, the possibility of Raynaud's disease and peripheral gangrene had been considered, and, in the second case, whether the condition appeared simultaneously in the arteries, or if it had come first in one and then in another. He thought that the disease might have originated from an embolus, and asked how it differed from a thrombus, what was the average number of cases in which it occurred in both limbs, and what was the average time to be expected to elapse before recovery took place.

Mr. W. PEARSON referred to a case which he had treated about three years ago, and which was somewhat similar to those described by Sir William Wheeler. The patient was a farm labourer, aged 38, who previously had been perfectly healthy, who had never been abroad, and never smoked cigarettes, but always a pipe. The gangrene was dry, but spreading rapidly, and affected the left limb. Mr. Pearson performed a supercondyloid amputation, and the man had remained quite well ever since. The Wassermann reaction in this case had been negative, and there had been no sign of any arterial disease in any other part of the body.

Mr. H. S. MEADE referred to two cases of arterial gangrene which he had treated. One patient was a sailor, and a heavy weight fell on his toe, which was very painful, and later became black, when he was admitted to hospital. There was a definite red line of demarcation on the ankle-joint. Leriche's operation was employed, and post-operative relief from pain was immediate. The second patient was an old woman, aged 80, who had gangrene, and great pain. Leriche's operation was performed, and immediate relief followed; the date of the operation was nearly two years ago, and there had been no recurrence. Both these operations had been performed under local anæsthesia.

Sir WILLIAM WHEELER, in reply, said that in making the diagnosis embolism was discussed, but was not seriously entertained. In the first place, obstruction from an embolus might produce the symptoms described in a young man, but if the limb survived the first few days the collateral circulation would be rapidly established and all anxiety would have disappeared within the first fortnight. As a matter of fact, the circulation in the second case became more precarious daily for three weeks, until gangrene finally appeared. In the second place there was no discoverable lesion from which an embolus would come. The pathological examinations later proved the correctness

of this point of view, and established the fact that a true thrombo-angiitis obliterans existed. Raynaud's disease was difficult to exclude as a possible explanation of the first case. Nevertheless, Raynaud's disease commencing in the toes, in a strong man of 25 years of age, was exceptional, and the patient was the exact reverse of the type of individual in which the Raynaud syndrome was to be found. No pathological examinations were made, and he did not definitely exclude the possibility of Raynaud's disease. In the second case the diagnosis of thrombo-angiitis obliterans was certain. It was made before operation, and the pathological examinations were conclusive. He had had a fairly large experience of the Leriche operation. It produced many of the effects claimed, but the physiological reasoning on which the operation was based was open to criticism, and was not satisfactory.

Carcinoma of the Pelvic Colon Treated by X Rays.

Mr. H. S. MEADE showed a specimen of carcinoma of the pelvic colon, involving the bladder, from a woman aged 69, sent to him for cystoscopic examination in March, 1926. The clinical details were as follows.

The patient had been operated on twelve years previously for uterine prolapse. Last June she was in a motor accident and suffered from shock. Immediately after the accident she noticed that she was obliged to sit sideways when she wished to pass water. This passed off, but she still remained very nervous. At the time of examination she complained of frequency of micturition, with scalding pain. This trouble dated back a year and a half, and had been growing steadily worse, so that she had to pass water every hour both day and night. She had had medical treatment, but was not cystoscoped before she consulted Dr. Meenan. Albuminuria was present and a few leucocytes, but no sugar. An attempt to cystoscope her was unsatisfactory, owing to her nervous state and the small capacity of her bladder, which held half an ounce. Any attempt to dilate her caused extreme pain, but there was no sign of inflammation. The patient was kept in bed and gradual dilatation tried as she refused an anaesthetic at first.

Ten days after admission she was cystoscoped. The bladder dilated up to eight ounces easily, and examination showed no sign of inflammation except the congestion of the trigone so common in the female bladder. Chromocystoscopy with indigo carmine showed the dye coming from the right kidney in five minutes and from the left in four minutes. Before catheterizing the ureters a rectal and bimanual examination was made and a mass on the left side of the pelvis in the region of the left broad ligament was found. This mass extended above the brim of the pelvis and appeared to be well fixed. A sigmoidoscope was passed and a carcinoma of the pelvic colon was found.

Owing to the age of the patient, the fixity of the growth, and her terror of operation it was decided to treat her with deep *x* rays, and eight days later she received a full treatment, estimated by Holdfelder's field selector and calculated by Solomon's iontoquantimeter, and administered in two portions on successive days. The factors were: wave-length, A.U. 09; field, 12 by 10 cm.; focal skin distance, 30 cm.; filter 0.5 mm. with 2 mm. aluminium.

Irradiating from the front, one field was over the left Poupart ligament and the other over the right on the first day. On the second day one field was through the centre of the sacrum from the back, with two smaller ones on either side of it. The factors for the smaller fields were: 6 by 8 cm. at a focal skin distance of 23 cm. The exposure for the larger field was sixty minutes, and for the smaller one thirty-five minutes. The treatment was borne well, without radiation sickness or nausea. The dilatation of the bladder had relieved the frequency, which, however, returned in a milder form one week after the *x* rays, but passed off in a few days. The patient said that she was much better, and there was a definite shrinkage in size of the tumour. The irritability of the bladder returned three weeks later, but was relieved by bladder sedatives. Five days after this the deep *x* ray was repeated, reversing the fields with the same factors. No other disability followed the *x*-ray treatment, excepting the usual transient anaemia, which readily responded to haematinics, and a feeling of tiredness which lasted a few days. Ten days later the patient thought that she was passing gas from the bladder, so she had another cystoscopical examination; on the left upper lateral side of the bladder a small area of inflammation (1 cm.) was found, in the centre of which there was a pinhole fistula. There was no sign of any gas, or any evidence of faeces in the urine or the bladder. The patient, a fortnight later, was in great distress, passing large quantities of gas, especially on micturating, which was accompanied by a whistling sound that could be heard at some distance, and over which she had no control. It was decided that the best thing to do was to perform a colostomy to prevent the entrance of faeces into the bladder.

The patient was operated on under gas and oxygen anaesthesia, and on opening the abdomen it was found that the growth was lying on the left side of the bladder. The uterus was retroverted and atrophic. The left tube and ovary were fixed to the growth, and were oedematous, as was also the colon, the latter being reduced one-third in size. It was also more mobile, so it was decided to remove it. To do this it was necessary to remove over one-third of the bladder with it. The bladder was closed with three layers of sutures, and a muscle-splitting colostomy was performed. A catheter was inserted in the caecum for the introduction of saline, the abdomen was closed, the pelvis was drained, and a Poussin catheter was inserted in the bladder. With the exception of a slight attack of phlebitis in the third week, the patient made an uninterrupted recovery.

On opening the intestine a comparatively large, very soft and mucoid, tumour was found projecting from the bowel wall. Sections taken through the wall of the intestine, including part of the apparently normal mucous membrane, showed the following microscopical characters. The mucous membrane where present was comparatively normal, but at one place there was intense inflammation at its junction with the tumour. The new growth was composed of greatly distended and irregular glandular acini filled with mucoid material. The acini were found invading the muscle fibres, but mitotic figures were scanty. Throughout the muscle there was much chronic inflammation, and the surface showed distinct peritonitis of a subacute type. The specimen was a "colloid carcinoma," and in this case was associated with a considerable amount of inflammation. Sections taken through an adherent piece of bladder showed much inflammation, but no carcinomatous element could be found in this piece of material.

The patient reported later that she was, and had been for three months, in a splendidly healthy condition, appetite and digestion excellent, and sleep better than for years. All organs were acting normally, and the appliance gave very little trouble. She had put on over a stone in weight, and had completely lost her nervousness.

Mr. Meade said that the specimen was shown in the first place on account of the difficulty of diagnosis. Even when the growth was found the patient gave no definite symptoms of carcinoma. She had been constipated, passed some mucus and blood, and had some pain over the left side of the abdomen, but was rather indefinite about these signs. The second reason was the reduction in the size of the growth by the deep *x* rays, rendering operable a clinically inoperable case. Mr. Meade added that such growths might involve the bladder and a fistula be present; this should not deter from attempting their removal.

Clinical Cases.

Mr. MAUNSELL showed a girl, aged 17, who had a large tumour, practically filling the upper abdomen, depressed in the middle, and filled out on each side. It was dull, and appeared movable. By an *x*-ray examination a diagnosis of dermoid tumour was made. Mr. Maunsell opened the abdomen in the middle line, and found the stomach pushed up, and below the stomach huge veins crossing the tumour, and below the tumour was the colon. The tumour burst, and fluid came out. Mr. Maunsell then opened it freely, and found inside it a foetus, apparently attached over the right kidney, one limb being adherent over the aorta. It was growing between the two lairs of the transverse mesocolon. The uterus and ovaries were normal, and the girl made an uninterrupted recovery. He also showed a case of diffuse haemangioma of the liver in a man, aged 26, who had come to Mercer's Hospital in the middle of the night, last summer. Two days previously he had developed progressive weakness and abdominal pain. He became absolutely blanched; the distended abdomen was opened, and there pure blood was found. A bleeding point was looked for unsuccessfully, but the blood seemed to be coming down from the liver. Next day the patient was transfused; he did well, and after a slow convalescence he was allowed up, but never had a perfectly normal temperature. One day while up he again felt faint, and was put back to bed, and from then had a higher temperature. An *x*-ray examination showed that the diaphragm was higher on the right side than on the left, as in a case of subdiaphragmatic abscess. A needle was inserted, and bloody fluid withdrawn. A rib was resected, and only blood escaped. A tube was then inserted, and the patient apparently bled internally, and died.

Mr. C. J. MACAULEY referred to a case somewhat similar to the one described by Mr. Maunsell which had been brought before the Academy some years previously by Mr. Blayney, but in this case the haemangioma had not infiltrated so much through the liver as in Mr. Maunsell's case.

MOBILITY AND PROLAPSE OF THE ASCENDING COLON.

AT the last meeting of the Royal Medico-Chirurgical Society of Glasgow, the President, Dr. JOHN COWAN, in the chair, Mr. R. B. CARSLAW read a paper on the importance of undue mobility and prolapse of the ascending colon as a factor in the causation of various abdominal conditions, based on the results of 242 cases treated by colopexy.

Mr. Carslaw first showed lantern slides illustrating the various stages in the development of the intestinal canal and its mesenteries, the commoner bands and membranes found at different sites, and the chief anatomical features of importance; he also exhibited *x*-ray photographs of the appearances seen in normal persons, the commoner variations from normal, and the characteristic appearances in persons when the ascending colon is abnormally mobile. The anatomical results of this undue mobility were then summarized. The speaker referred to the two "types" of individual with faulty body formation who suffered commonly from the condition of prolapse—namely, the "virginal" and the "maternal." The clinical symptoms were discomfort after food, with more or less flatulence, passing into actual pain, which was characteristically variable and inconstant. Later, there was loss of appetite, increasing flatulence, and frequent bilious attacks, with headache, nausea, and malaise. Constipation might not be present at first, but was invariably present in the later stages. Finally, toxic phenomena appeared, such as progressive wasting, pigmentation of the skin, chronic mastitis, and, most important of all, mental changes. These symptoms occurred in groups, justifying the classification of the patients into clinical types, as, for example, "gastric," "duodenal," and "right iliac fossa." Mr. Carslaw considered that there was no such disease as chronic appendicitis, and emphasized the distinction between recurrent attacks of true inflammatory appendicitis and the condition of choked appendix, with appendicular colic, not accompanied by inflammation. Some authors had described "renal" and "biliary" types associated with attacks of renal and biliary colic, but in the speaker's series these symptoms were additional to the other symptoms, and the patients were not classified in a separate category. Mucous colitis and chronic duodenal ileus were mentioned as occasional late results. The relation of gastric and duodenal ulcer to prolapse of the ascending colon was briefly considered. Treatment was discussed under three headings: preventive, curative by suitable diet, laxatives and exercises, and operative. In Mr. Carslaw's opinion the correct operative procedure was to correct the undue mobility and prolapse of the caecum and ascending colon by Waugh's colopexy. In certain cases fixation of the caecum was sufficient, but in others not only must the whole ascending colon be fixed, but it was necessary to suspend the right half of the transverse colon as well. The restriction in the undue mobility seemed to him to be, perhaps, even more important than the correction of the prolapse. Division of any developmental membranes should also be performed, and if there was kinking of the gall bladder, with stagnation of its contents, it might be necessary to suspend or even to drain it, after division of its ventral membrane. The appendix, if present, was removed, except in those cases of severe mucous colitis, when an appendicostomy should be performed in addition to the colopexy. If there was marked hepatosis the correction of this might be helped by shortening the round ligament; the right kidney and the uterus should be left alone. After demonstrating a number of *x*-ray films showing the results of operation, Mr. Carslaw reviewed the clinical results of 242 consecutive colopexies performed between March, 1920, and July, 1926. In the great majority of cases the symptoms disappeared within a few months of the operation. The appetite, which had usually been very fickle, rapidly improved, and patients often reported their great satisfaction at being able to eat anything and everything. The relief from the distressing and often embarrassing flatulence was also greatly appreciated. The former bilious attacks, especially in the duodenal type of case, persisted for some months, but were much less frequent and severe. Although the characteristic pain, either after food or in the right iliac fossa, soon disappeared, in some cases a considerable degree of discomfort was felt in the right side of the abdomen; this worried the patient for about a year. The recovery from constipation, no matter how obstinate it might have been, was one of the most satisfactory results. A degree of constipation persisted, but as a rule the condition was absolutely cured. Another satisfactory result, noted in many cases, was the disappearance of menstrual irregularities; this occurred too frequently to be mere coincidence. There was usually a rapid improvement in general nutrition, with steady increase in weight, and the mental outlook was brighter. Of the 212 patients who were satisfied with their present condition, 44 were in his opinion not cured, although very much improved, as they still had some discomfort, occasional flatulence, some degree of constipation, or had failed to put on weight. The remaining 168 were absolutely cured, and that the cure was permanent could be seen from the number of years which had elapsed since the operation. Mr. Carslaw concluded by giving details of a number of the cases and of those classified as failures.

Mr. A. MCLENNAN said that he, in 1925, had performed colopexy, according to the method of Waugh, in 20 cases, but the reason for opening the abdomen had been that the appendix was suspicious. He believed that the appendix ought to be removed on suspicion, and he disagreed with Mr. Carslaw's contention that no such thing as a chronic appendix existed. The benefits which followed from colopexy were sometimes extremely striking. It was always difficult to explain the benefit which the fixation of the colon could achieve when the mechanics of the colon were considered. A remark about the dragging of the ascending colon upon the liver seemed rather absurd, because one of the clinical signs of ascites was that the intestine floated upwards. The weight of the ascending colon was a negligible quantity, and he failed to see how it could be an influential factor in the causation of duodenal ulcer, gall stones, or any other out-of-the-way disease. It had been thought that the kidney pushed the ascending colon down, but Mr. McLennan did not think that the ascending colon ever pulled the kidney down. He had been in the habit, since at least 1905, of fixing all caecums that he thought were excessively mobile. He had followed up several of the cases so dealt with, and he thought the procedure had resulted in considerable benefit. Another advantage was the obliteration of the intercolic membrane. Mr. Carslaw wanted them to believe that the drop in the ascending colon was the initial process in enteroptosis; it was an absence of muscular energy which followed the prolapse. He did not think Mr. Carslaw was correct in saying that children had highly placed ascending colons. A great deal had been made of the cause of most of the ills of humanity being the upright position, but Mr. McLennan thought the majority of the ills were due to the want of the upright position.

Mr. W. A. SEWELL thought that the practice of colopexy by Mr. Carslaw and others had been in a sense an experiment. It had been an attempt to find out whether Waugh's teaching was true, and whether by means of colopexy a cure might be found for the many and various symptoms associated with ptosis of the abdominal organs. Colopexy, like gastro-jejunostomy, colectomy, and even laparotomy, had had to run the gauntlet of criticism; it was often denounced most bitterly by those who had little knowledge of the operation beyond two or three cases. If critics would inform operators of their failures, much useful information would be obtained. In an inquiry of this kind a definite conclusion could only be reached by analysing a large number of cases over a considerable period of time. Since 1920 in the Victoria Infirmary Mr. Sewell had operated on, or been associated with Mr. Macrae in, 127 cases where colopexy had been performed. Of the 127 patients he had been able to trace only 69, and of

these 32 were perfectly well, 16 much improved, and 21 were failures, 4 of whom had died at a later date from acute meningitis, tuberculosis, excision of gastric ulcer, and cause unknown. He had deliberately treated two cases by colopexy where the pylorus was under suspicion, but a gastro-jejunostomy was required later and resulted in marked improvement. Some had criticized the operation because the patient had been diagnosed as a case of appendicitis; since the appendix was removed when the colopexy was performed, they argued that it was really the appendix which was at fault. Some of these patients were found on admission or at a later date to have an appendix normal in size and appearance; but in addition there was a large, loose caecum which could easily be pulled out of the wound. The true diagnosis in these cases was, in his opinion, a volvulus of this loose caecum. Those who followed their cases to the operation table must have seen the large, loose, mobile bowel and the apparently normal appendix. The removal of the appendix was an integral part of the operation of colopexy as described by Waugh, unless it had been removed previously. Lichty reported in 1923 on a series of 400 cases of "chronic appendicitis"; 225 were cured, therefore in 175 there had been a mistake in the diagnosis. Colopexy was not an alternative to gastro-jejunostomy for cases of pyloric ulcer, but it was an attempt to prevent the formation of ulcers, to remove the pull of the loaded ascending colon in that and other regions, and to cure the symptoms accompanying local and general visceroptosis. Mr. Sewell thought that colopexy undoubtedly lessened and often removed the pain associated with "floating kidney," and certainly restricted its movements. The results of the operation were by no means perfect, but they were encouraging, and the operation of fixation of the unduly mobile caecum and ascending colon was worthy of further investigation.

Mr. DONALD DUFF said that common dyspepsia, constipation, gastric ulcers, mesenteric ileus, and even dysmenorrhoea had been put forward as results of a mobile colon. Mobility of the caecum and ascending colon were normal conditions, and a fixed colon would be the abnormal condition. They had heard much about the presence of bands about the lower ileum and caecum as being of developmental origin, and Lane's ileal kink had been shown on the screen as one of these. Mr. Duff had had pieces of these bands removed at operation, and *B. coli* had been grown from practically all of them, proving that the bands were inflammatory in origin and secondary to constipation. A mobile caecum had been frequently discovered at abdominal operations, but every case he had seen of such a condition had also a last kink well developed. If developmental error was the cause of mobile colon, as claimed by Mr. Carslaw, it was curious that women should have been selected by Nature for the exhibition of this deficiency in the proportion of over 3 to 1, as stated in Mr. Carslaw's statistics. These figures, in fact, proved that the enlargement and mobility of the caecum were secondary to the constipation which was prevalent in the female sex, and due not to developmental error but to bad habits. Mr. Duff had been able in many instances to cure these cases of obstinate constipation by division of the bands alone without colopexy. Colopexy could not be adequately performed without division of Lane's bands, but it was the division of the bands and not the colopexy which produced any good result.

Mr. ROBERT TENNENT said he had been much impressed by the results of colopexy and by the benefits that had accrued therefrom. His own cases had nearly all been of the right iliac fossa type. Hardly a week passed in hospital without an urgent case being admitted labelled "appendicitis," the main symptom being pain in the right iliac fossa. In some cases these patients had been dismissed without operation, and later had been readmitted. On operating, it was invariably found that there was a very mobile caecum, and in these cases simple removal of the appendix would probably be nearly valueless. Appendectomy for so-called "chronic appendicitis" was useless if a mobile caecum were present. Mr. Tennent said he had traced about 60 cases where caecopexy had been performed, and he was very pleased with the results. He had rarely performed an exploratory operation with the idea of colopexy, but he had tried colopexy in cases where he had opened the abdomen for some other condition. In these cases he was convinced that the operation had been well worth while. He had also been struck by the fact that in the few cases of colopexy in males the results had been very unsatisfactory. In each of these cases the patient had probably suffered from what Mr. McLennan called defective innervation of the colon, for great dilatation was present. In such cases no beneficial results whatever had occurred. He thought that the point regarding the frequency of incidence of a loose colon in the male and female was explainable. A certain number of the women had had repeated pregnancies, which probably had an effect in loosening the colon. With regard to the transverse colon, Waugh's main point was that the ascending colon was the first part of the bowel which had to propel against the force of gravity. The transverse colon was in a better mechanical position for dealing with the contents than a mobile ascending part, which had a lot to do with chronic duodenal ileus. Mr. Tennent stated that he had seen several of Mr. Carslaw's cases at the second operation who, at the first operation, had had very marked duodenal dilatation; the correcting of the ascending colon had produced very beneficial results.

Dr. JOHN RITCHIE gave details regarding some thirty of his patients upon whom Mr. Carslaw had operated, and said that it was impossible to be apathetic or indifferent when the state of these patients before operation was contrasted with their present condition. Brief notes had been taken of nearly every case from time to time, going back in some instances to 1907. The patients fell readily into the groups referred to by Mr. Carslaw. Thus, some had pain at a varying period after meals, with flatulence, eructations, gurglings, and splashings. Some had pain a considerable time after meals, with attacks of vomiting. One had such severe pain that a pin-hole perforation of a duodenal ulcer was suspected. One had mucous colitis in addition to other symptoms. In some cases the pain was referred to regions other than the abdomen, as, for example, the heart, the back, the pelvis, and the leg. Many suffered from depression, sleeplessness, and obstinate constipation, and some had had previous operations. His notes in many cases extended over a considerable period of years, showing the patients to be never long off the sick list. He considered the results in practically all his cases to be most satisfactory, relative or absolute health being restored by the operation.

Dr. WALLACE ANDERSON said that all the patients in his series, operated upon in each instance by Mr. Carslaw, were drawn from the east end of the city, where the conditions, domestic, environmental, and social, must be distinctly less favourable to complete and speedy convalescence from any abdominal operation than elsewhere. He considered that seven of his eleven cases were complete "cures," inasmuch as the patients were now free from symptoms, and quite able to carry on their previous duties. Of the remaining four, two patients admitted improvement, being able to work, but not being so well as they ought, and hoped, to be. One of the seven "cures" was a patient who, prior to operation, had a course of medical treatment lasting six weeks, in one of the infirmaries, for "duodenal ulcer," with no real benefit. The others had had variable amounts of medical treatment at home, without apparent improvement. The remaining two cases of his series had both had operations prior to that of colopexy. One of them had had gastro-jejunostomy performed some years before, with no remission of symptoms. The result of his colopexy was not yet certain, as he was still in hospital, recovering from a secondary operation undertaken for the purpose of replacing the original gastro-jejunostomy. Dr. Anderson had therefore classified him in the meantime as a "failure," although he hoped ultimately to be able to remove him from that category. The last case he considered a complete failure. The patient was a typical "abdominal woman," who, prior to coming under his care, had had two abdominal operations, presumably gynaecological in nature, with no benefit. As she was no better after colopexy, Dr. Anderson had her admitted at a later date to the Eastern District Hospital, where she improved for a time on treatment for "migraine." She was subsequently sent to the Western

Infirmary, in which institution she underwent a further abdominal operation. Her present condition was unknown to him. It had been argued that, as the appendix was removed as a routine in the operation of colopexy, it was therefore impossible to be certain that any subsequent improvement was due solely to the fixation of the ascending colon. Against this argument Dr. Anderson was able to state that in all his cases the appendix was to all appearance normal, and that in no fewer than twenty-nine of Mr. Carslaw's cases appendicectomy had been performed prior to the colopexy operation. Though not a panacea, the operation of colopexy had a definite place in abdominal surgery, and deserved the careful consideration of surgeons and general practitioners.

Dr. W. M. KNOX stated that during the previous five years he had had a series of eighteen patients operated on for this condition. Ten of these cases were of long standing, and there were symptoms of chronic gastro-intestinal intoxication, such as mucous colitis, anaemia, anorexia, constipation, and nervous symptoms. All these patients had undergone prolonged medical treatment, such as dieting, rest for varying periods, and intestinal antiseptics, with only temporary relief. All welcomed operative treatment as a possible escape from their prolonged suffering, and with only two exceptions the results had been satisfactory. In three other cases the appendix had been previously removed without any amelioration of the condition, but after colopexy recovery was complete. The remaining five cases were of the gastric type of comparatively short duration and were completely cured. Dr. Knox concluded that even in long-standing conditions operation proved beneficial; that unsatisfactory results followed the removal of the appendix without colopexy; and that an early operation was necessary in order to obtain the best result.

Dr. DOUGLAS RUSSELL asked why there were 10 per cent. of these cases associated with duodenal ulcer if a mobile caecum was such a very important factor in the causation of duodenal ulcer. There seemed to be a discrepancy somewhere. Many of the cases were said to be associated with defective innervation, but his opinion was that it was the mentality of the patient that was at fault. Dr. Russell exhibited an *x*-ray film of a patient with a mobile caecum treated by colopexy four years previously. The film showed the caecum lying in the deepest part of the pelvis and the stomach atonic and greatly ptosed. Yet the patient was undoubtedly cured by operation although the colopexy had been a complete failure. The difficulty was to estimate, in the "mental" type of patient, whether they were likely to benefit by operation. Such patients could be diagnosed almost at sight, by their flabby aspect and stance, due to a wide sigmoidal curve of their vertebral column.

Mr. JAMES TAYLOR said it had been suggested that the various bands occurring in connexion with the bowel were congenital in nature and were not acquired as the result of the traction downward of the loaded intestine. It was perfectly true that there were congenital bands, because the bowel must be supported in some way even in the child. But the bands that Lane had so aptly described as the "crystallization of lines of force" developed within the congenital folds. The one at the terminal ileum was most often seen, not because it was actually the commonest, but because it occurred in the region of the abdomen that was most frequently explored by the surgeon. It would be seen that this band was a dense white fibrous fascia occurring between the layers of the mesentery, and the under surface of this mesentery had to be cut through to allow this band to be divided. It was a structure which had formed in a congenital fold. The benefit that resulted from colopexy might be due to the straightening out of the terminal ileum. Viewing this part of the bowel as forming a very acute arch with the caecum and last inch of the ileum on one side and the next portion of the ileum on the other, Lane obtained his result by dividing the band supporting the summit of the arch, while Waugh, by fixing the caecum and ascending colon at a higher level than they were before, brought the outer limb of the arch into line with the inner limb. As Lane also straightened out the kinked pelvic colon, colopexy was really a modification of part of Lane's operation.

THE DICK TEST.

AT a joint meeting of the Manchester Medical Society and the Pathological Society of Manchester on January 12th, Dr. A. A. MUMFORD in the chair, Dr. D. SAGE SUTHERLAND opened a discussion on the clinical value of the Dick test and the preparation and use of scarlet fever toxin and antitoxin.

Dr. Sutherland stated that in 30 cases of definite scarlet fever during the first three days of the rash distinguishable blanching was obtained with dilutions of immune serum up to 1 in 5,000 in from twelve to twenty-four hours. In two doubtful cases of scarlet fever, where no blanching was obtained, the subsequent clinical symptoms confirmed the diagnosis as being other than scarlet fever, and in three cases where the rash was definitely due to another cause no blanching was observed. Among the members of the nursing staff at Monsall Hospital 15.3 per cent. were found by the Dick test to be susceptible to scarlet fever, and were immunized before being detailed for duty in scarlet fever wards; 23 per cent. were found susceptible to diphtheria, and were protected by immunization. During the last six months no cases of scarlet fever or diphtheria had occurred among nurses thus protected. Of 354 diphtheria patients who were Dick-tested on admission to hospital, 55.9 per cent. were found susceptible to scarlet fever. The proportion of susceptibles was found highest—83.3 per cent.—at the age period of 1 to 2 years. Of 589 scarlet fever patients who were Schick-tested on admission for susceptibility to diphtheria, 56.5 per cent. were found susceptible. The proportion of susceptibles was highest at 5 years of age, reaching 75 per cent. The standard of immunity of diphtheria patients to scarlet fever was lower than that of patients suffering from scarlet fever to diphtheria up to the age of 5 years. After 7 years the reverse applied, and in both diseases the standard of immunity was much lower than among an average healthy community. A table of Dick tests with a standard dilution of 1 in 1,000, classified according to day of disease, on 566 definite cases of scarlet fever on admission to hospital, showed, in a survey of 463 patients during the first five days of illness, that 83.6 per cent. were Dick-positive. Of those giving negative reactions during this period, 36 had intensely marked rashes, which may have masked the reaction. On the second day of rash 86 per cent. were found to be positive reactors, and, by including possible masked reactions where the rash was intensely marked, this percentage of positive reactors could be raised to 95.5. It was suggested that the remaining 4.5 per cent. of negative reactors might be accounted for by rapid development of immunity during the incubation and invasive period of the disease. These figures closely approximate to those of Zingher of New York. Dick tests on 150 early cases of scarlet fever, at successive short intervals, demonstrated the establishment of immunity in 90 per cent. of cases at from nine to fifteen days, the remaining 10 per cent. becoming negative in from two to three weeks. In a scrutiny of nearly 800 cases of scarlet fever during the last five months, in about 20 cases where the diagnosis of scarlet fever was undoubted, and where susceptibility, as indicated by the Dick test, had persisted beyond four weeks, a reinfection or relapse had in nearly every case occurred, at periods varying from four to six weeks, followed in a few days by a Dick-negative reaction. It was noticed that these cases were marked in the primary attack by a very slight degree, or absence, of pyrexia, the other symptoms, including subsequent desquamation, being characteristic. It was recommended that such cases be actively immunized to establish immunity by the twenty-first day. Three hundred skin doses of toxin were sufficient to change a positive to a negative reaction, and this dose was unattended by any constitutional disturbance. A Dick test on all cases at the onset of illness and on the twenty-first day was recommended. The use of the test was summarized as follows. A very strongly positive reaction early in the disease and again late in convalescence was against the diagnosis of scarlet fever. A definite negative reaction during the first two days of rash should warn the practitioner that he was not dealing with a case of scarlet fever. The Dick test should be applied to the diagnosis of sore throat and pyrexia

associated with definite cases of scarlet fever in the same family. The test was useful in determining the establishment of active immunization and in estimating the potency of antitoxic serum. In the diagnosis of scarlet fever the test should be interpreted in relation to the susceptibility of healthy individuals at the age period of the patient. The test was specially useful on the occurrence of scarlet fever in a diphtheria ward. The Dick test made on admission would indicate without delay the susceptible patients, and protection could be immediately rendered by a prophylactic dose of immune serum. During the last year, on two occasions, in a diphtheria ward of fifty beds, an outbreak of scarlet fever had been followed by no secondary cases when such a course was adopted. It was recommended that in surgical wards where exposure to scarlet fever was suspected, patients who had not previously suffered from scarlet fever should be Dick-tested before operation and prophylactic serum administered where the reaction was positive. The value of immunization in case of extensive burns was indicated, even in the absence of exposure to the infection of scarlet fever.

Dr. R. A. O'BRIEN called attention to the importance of the protection of nursing staffs in fever hospitals and the 10 per cent. incidence of scarlet fever in some hospitals. At Monsall both diphtheria and scarlet fever were in process of disappearing since Schick and Dick testing and immunization had been introduced. Among the nurses, apparently 40 out of 45 with a previous history of scarlet fever gave a negative response to the Dick test, and 18 out of 19 nurses with a previous history of diphtheria gave a negative response to the Schick test. The Dick test during the first three days of the attack of scarlet fever was positive in the Monsall series in 217 out of 251. It was noted, however, that 28 of the negative reactors had very vivid rashes. Presumably in such cases the capillaries were dilated to their fullest extent by the circulating toxin, and no local introduction of the Dick test amount of toxin could increase this dilatation. In other words, these patients presented a "universal Dick-positive response." If these 28 cases were deducted, the test was positive in 217 of 223 patients, or 97 per cent. The figures for the test applied up to the fifth day of the disease were 388 positive and 27 negative ("vivid rashes" being eliminated), or 93 per cent., whereas from the sixth day onwards the percentage dropped to about 60. All such collections of figures showed that measurable immunity developed rapidly in the average patient at or about the fifth day; this agreed with clinical experience. The Schultz-Charlton test was positive in 35 successive cases admitted and tested during the first three days of the rash. The test was obviously of considerable use in practice, and it was now in routine use in several hospitals in the examination of all "doubtful" cases of scarlet fever. Blanching in this series had been obtained with serum diluted to 1 in 4,000. Evidently a reasonably good serum for clinical use would in this dilution produce blanching in the great majority of patients tested during the first two days of the rash. The clinician had thus in his hands a method of rough measurement of the clinical value of any serum he proposed to use for treatment. The comparison of the Washington Dick toxin with that in use in many places in this country suggested that in corresponding dilutions the two toxins were of nearly equal potency. The comparison would be resumed later when a further sample of the American toxin was available. Apparently, among some 600 to 800 patients convalescent from scarlet fever at Monsall, about 20 gave a positive response to the Dick test at or after the third week of convalescence. The Monsall plan of giving a small injection of toxin to such patients found to be Dick-positive on the twenty-first day, and the resultant negative Dick reaction a week later was of great interest to the immunologist, and probably of equal interest to the administrator. It might prove to be a better treatment than giving passive immunity to such patients with antitoxin. "Second attacks" of scarlet fever during the stay in hospital caused a considerable amount of trouble to all concerned. Dr. O'Brien showed figures illustrating the results got by the Parish-Okell rabbit test, which promised to be of considerable use in the titration of antitoxin and, possibly, in the identification of pathological haemolytic streptococci.

HELMINTHS AND DISEASE.

AT a meeting of the Section of Comparative Medicine of the Royal Society of Medicine, held on January 26th, the President of the Section, Sir D'ARCY POWER, in the chair, Dr. T. W. M. CAMERON contributed a paper on the helminth parasites of animals and human disease.

Dr. Cameron said that parasitology, better perhaps than any other branch of medicine, served to draw attention to the close interrelationship existing between curative, preventive, and comparative medicine. Apart from the case of *Hymenolepis nana*, all cases in which man acted as an intermediate host to animal parasites must be considered as accidental, as the parasite was side-tracked and unable to continue its life cycle. Some forms did, however, often thus occur accidentally in man, and these included some of the most dangerous of human parasites. The most serious of these was the hydatid cyst, a parasite only too common in Britain. Dr. Cameron had recently drawn attention to the modern conception of the life-history of this form,[1] and he only desired to consider its epidemiology on this occasion. The adult form lived in carnivorous animals, especially the dog; but there was evidence to suggest that the fox was a common carrier in Britain at least. Practically any animal might harbour the cystic stage, but the sheep was most commonly affected, and so the disease was commonest in pastoral countries, such as Iceland, Australia, South America, and North Africa. There infection reached very high figures, and in some as many as 100 per cent. of the animals were infected. In sheep and cattle, however, unlike human beings, infection was generally in the lungs, not the liver. The disease in man was usually studied in adults between the ages of 20 and 40, but it was in childhood that the great majority of the infections took place. Owing to its slow growth, the cyst was not diagnosed until adult life, except when for mechanical reasons, such as infection of the eye or brain, diagnosis was early. It had generally been considered that the commonest means of infection of man was through the drinking water; but the recent work of Ross in Australia suggested that this was not so and that personal contact with dogs was more important. In Iceland, infection was attributable to the peculiar habit of herding ewes in limited areas near the house, where the fleeces became soiled with the droppings of the dogs, and so the eggs were transferred to the hands of the women and children; the men meanwhile had taken the rest of the flocks to the hills.

Two species of *Taenia* occurred in man, the commoner being *Taenia saginata*, in spite of the prevailing belief that *T. solium* was more frequently found. This last species did occur, although it was very rare, especially in Britain. The larval stage of both of these forms could live in man, and this was particularly the case with *C. cellulosae*, which often chose such unusual habitats as the eye and brain. A similar cysticercus was occasionally seen in sheep in Britain, but this was the larval stage of a dog worm which could not be transmitted to man. *Dibothriocephalus latus*, although common in Europe, was probably now absent from Britain. Its second larval stage occurred in fish, and in Switzerland cats probably acted as reservoir hosts. The larval stage of a related form was often found in man in the Far East under the name of *Sparganum mansoni*. There was some doubt about the unity of this species, the adults of which were found in dogs and cats. Another important species was *Trichinella spiralis*. How long the disease called trichinosis had been recognized was unknown, but it was probably the chief cause of the Mosaic injunction against the use of pork—an injunction which had been drawn from even older Semitic civilizations. It was first recognized in London, in 1828, and about fifty years later was responsible for international complications between Germany and the United States, and was the direct cause of the present efficient American system of meat inspection. The importance of the parasite was slight where pork was overcooked before use; and epidemics were practically confined to persons who ate raw or smoked sausages. Dr. Cameron here drew attention to the frequent diagnosis

[1] BRITISH MEDICAL JOURNAL, November 20th, 1926, p. 940.

of "typhoid" or "ptomaine" poisoning in acute cases and of "rheumatism" in chronic cases of the disease. Symptoms in the pig were generally absent, and the flesh to the naked eye was unchanged. Rodents were often infected, but in them the symptoms were often very severe, and this suggested that these animals might be accidental hosts. The distribution of the disease in Britain was unknown, although it did occur. It must be remembered that symptoms were directly proportional to the numbers of worms swallowed, and slight infections probably showed no symptoms at all, were unlikely to come to the attention of the physician, and were still less likely to be diagnosed. One of the commonest of the remaining parasites of dogs liable to be transmitted to children was *Dipylidium caninum*, a tapeworm, the intermediate stage of which occurred in fleas. The diagnosis of this parasite in children often subjected the physician's tact to a considerable strain and caused him unnecessary anxiety owing to confusion with *Echinococcus*. Children were also occasionally infected with the several species of ascarid worms of dogs and cats. In certain cases parasites found in animals were morphologically indistinguishable from those in man, but cross-infection experiments proved negative. In these cases it was possible that biological strains existed. This was the case in *Ascaris*, *Necator*, and possibly *Trichocephalus* of the pig and man, and *Hymenolepis nana* in mice and man. Until these strains had been more thoroughly investigated it was better to consider the animals as potential carriers to man. A list of parasites of man and animals showed that with few exceptions all the human forms were found in animals. The exceptions were the pinworm, related forms of which occurred in monkeys, *Filaria bancrofti*, the Egyptian *Schistosomes*, and the human *Taenias*. In all of these cases, however, closely related species occurred in domestic animals.

In conclusion, Dr. Cameron drew attention to the probable evolution of human parasites. Many of these were apparently of herbivorous origin in early evolutionary days, but a few were apparently from carnivorous animals. He referred to Darling's notion that the geographical distribution of the human hookworms suggested that two strains of anthropoids had originally existed—one from holarctic regions and one from Ethiopian regions. The first was *Ancylostoma duodenale*, which occurred in the Caucasian and Mongolian peoples; and the second was *Necator americanus* (which, in spite of its name, came from Africa), and it was found in negroid people. The first was of carnivorous origin, the second of herbivorous origin. He considered that the parasitological evidence suggested that man had in the course of his evolution had occasion to change his diet. The parasites which, in modern times, man might acquire from animals were only very seldom acquired from herbivorous animals. The usual hosts of these forms were dogs, cats, and pigs. He thought that the strong resemblance between the parasites of man and the pig were due to diet and the facilities that the animal had for acquiring parasites passed in faeces.

Sir D'ARCY POWER noted that he had seen two human cases of trichinosis, both of which had originally been diagnosed as acute rheumatism. He suggested that fish would be a probable source of infection of our pre-human ancestors, as this was a large part of their diet.

Dr. NICOLL pointed out the comparatively small number of parasites which monkeys had in common with man, and remarked on the surprising lack of knowledge about the parasites of man; this was a matter that should be much more studied.

Professor R. T. LEIPER drew attention to the fact that a number of parasites of man in Central Africa were common to man and monkeys. He thought that man's parasites had probably been influenced by three factors: change of food, association with domestic animals, and simian forms. It was peculiar that none of the parasites of the horse ever occurred in man, considering the close relations which used to exist between man and this animal.

LIGHT TREATMENT IN SURGICAL TUBERCULOSIS.

AT a meeting of the Section of Electro-Therapeutics of the Royal Society of Medicine on January 21st, Sir HENRY GAUVAIN gave an address on light treatment in surgical tuberculosis, based chiefly on his experience at Alton and Hayling Island.

Sir Henry Gauvain said that the sun was not to be regarded as a specific treatment or a cure for all forms of surgical tuberculosis, but rather as an aid to, and an accelerator of, cure in suitable cases. Residence under conditions generally regarded as ideal for the practice of sun treatment neither protected individuals from infection nor necessarily aided in treatment, and the disease, even in these circumstances, might proceed to a fatal termination. Tuberculosis was endemic in Switzerland, and the sun treatment of patients in the high Alps by no means necessarily resulted in cure or even amelioration. No adequate explanation of the *modus operandi* of light in the amelioration of tuberculous disease had as yet been advanced. Certain specific effects followed light treatment, but these did not offer a sufficient explanation of the benefits which might follow insolation or of the failure of light treatment in many cases. He advocated a wider consideration of the action of sunlight. Given adequate light of the right therapeutic character and intensity the only unchanging phenomenon in sun treatment was the reception of stimuli which were constantly changing. The importance of these changing stimuli was emphasized, and in this way an explanation of the value of insolation in districts not notably sunny was afforded. Sun treatment for its general effects in surgical tuberculosis was more suitably administered in the constantly changing conditions found in temperate climates than in the comparatively more stable conditions found in many tropical regions, where the intensity of the light might be much greater. The benefits of insolation, after a certain intensity of light was obtainable, were derived, not from the action of light alone, but from the shock of varying stimuli eliciting favourable responses. As an example of one of these favourable responses was instanced the effect of cold air on the nude body in increasing basal metabolism. The varying responses of individuals to insolation were discussed. They were noted clinically, and the optimum dosage of sunlight could not be determined accurately by physical measurements of light intensity or the observation of isolated physiological effects. The best guide was afforded by clinical observation and experience. Pigmentation of the skin, inasmuch as it was protective and allowed more prolonged exposure to light and cold air, was an advantage. The patient's individual power of response should be carefully studied, as on that depended much of the success of insolation. Practical methods of improving heliotherapeutic treatment in England were suggested and the value of combining with it suitable artificial light treatment was discussed. Artificial light treatment for surgical tuberculosis owed much of its lack of success to the non-recognition of fundamental essentials. Constant intensity of light with regular exposures under the unvarying conditions found in a light department could not be expected to produce optimum benefits. A certain minimum of light, varying with the individual, might be considered as essential for the conduct of light treatment, but after that greater importance was attached to varying intensities and times of exposures, in this way simulating more nearly light therapy under natural conditions. Local light treatment of superficial lesions should be governed by entirely different rules of application. As an example, in lupus vulgaris light was of value by its direct bactericidal action, its thermal effect, and the favourable inflammatory response which suitable exposure elicited. The value of general light treatment in any particular district depended only in part on the intensity and nature of the sunlight available. For some individuals very intense light was the reverse of beneficial, particularly in the case of cachectic patients with little power of response. What was of much greater value was the application of varying light and other stimuli, graded and varied according to individual needs. Patients able to

respond well would do well under intense stimulation, whereas with weaker cachectic and elderly patients great caution should be exercised and only slight stimulation was at first appropriate.

MORTALITY FROM MAMMARY AND UTERINE CANCER.

AT a meeting of the Section of Epidemiology and State Medicine (Royal Society of Medicine), held on January 28th, with Dr. S. MONCKTON COPEMAN in the chair, a paper was read by Dr. MAJOR GREENWOOD and Dr. JANET LANE-CLAYPON on "The possibility of effecting a reduction in the present mortality rate from cancer of the breast and of the uterus."

The paper, which was read by Dr. Greenwood, presented a great amount of admirably arranged statistical matter, obtained from various sources, national and local, concerning on the one hand the deaths from cancer at these sites, and on the other the number of hospital applicants and operations. The authors combated one statement, not infrequently made, that a considerable proportion of inoperable cases of cancer must be accepted as permanent. This was based on the assumption that many patients were unaware of their condition until the condition was too far advanced for effective surgical treatment. It was shown on the basis of a number of cases that on the average a period which could be measured by months elapsed between the recognition of an abnormality by the patient and her submission to medical examination. In cancer of the breast this mean alleged duration—alleged, that is, by the patient—was eight to twelve months. A lump in the breast was nearly always discovered by the patient herself; occasionally, when there was complaint of pain, the lump was discovered only by the examining surgeon. It was remarkable for how long a time some patients would endure their symptoms before calling in medical aid, but the point was established that there was avoidable delay both in cancer of the breast and of the uterus. The authors showed a table giving the death rates from cancer at these sites for different ages, and remarked upon the steady tendency for the mortality to increase with advancing age. It was a disturbing fact that this increase in England and Wales contrasted with what was found in other countries. In Holland the rate of mortality from cancer of the breast underwent three phases; it rose rapidly from 35 to 55, then there was a slight slackening until 70, after which there was again a rapid rise. An elaborate investigation carried out in Holland furnished no satisfactory proof that surgical intervention was in fact more frequent or more timely than in England and Wales. The deaths in this country from breast cancer in relation to age periods showed that about 47 per cent. occurred after the age of 60, and 24 per cent. after the age of 70. It was possible to compare these proportions with figures relating to the ages at which treatment was sought by applicants at hospitals in six large county boroughs. Only 17.6 per cent. of the applicants were over 60, and less than 3 per cent. were over 70. In London it appeared that not more than 50 per cent., perhaps not more than 30 per cent., of women dying from cancer of the breast had been operated upon, and similar statistics from certain large towns were only slightly better. Evidently a great number of women died without seeking or obtaining radical treatment; a good proportion of these, of course, would be older women. Some interesting figures were obtained in Leeds illustrating the advantage of early operation. In cases in which early operation had been done for cancer of the breast (eighty-seven cases), 56.9 per cent. were surviving after ten years. Of all cases operated on at whatever stage (357), 25.9 per cent. were surviving after ten years; but in untreated patients the number surviving after six years was negligible. The authors then went on to discuss various necessary qualifications and assumptions, but broadly their opinion was that, without any fresh accession of scientific knowledge, and merely as a result of education and administration whereby cases might be brought forward earlier and facilities for operation made more available, the deaths from cancer of the breast might be reduced to half the present number. No revolutionary improvement in the art of surgery need be postulated, but annually many thousands of lives might be saved. It was a question of the respective parts played by administrative action, whereby more hospital provision might be made for operable cases, education of the public, and education of the practitioner. Surgeons as a whole had been unduly despondent as to the possibilities of their art under these conditions.

Sir JAMES BERRY described the paper as the best contribution to the subject of cancer of the breast that he had heard for many years. It showed the striking way in which the mortality incidence of cancer varied directly with age, and it bore out what he had said at the annual dinner of the society, that, without decrying laboratory and pathological research, there was another kind of research—namely, clinical research on case records available in hospital reports, Government publications, and other sources of information, which might be studied with advantage.

Sir LENTHAL CHEATLE said that the mortality of breast carcinoma could be reduced if cases were obtained early enough. Operations took place too late. He considered that diffuse nodularity of the breast, except in very thin breasts, was not of great importance, for with increasing age every breast might be described as nodular, but localized nodularity was highly important, and a sign often neglected.

Mr. SAMPSON HANDLEY said that in some respects the authors had been unduly pessimistic. They appeared to think that the saving of life by operation was not likely over the age of 70. He did not agree with that. Old people nowadays often stood severe operations very well indeed. He agreed that breast cancer could be detected much earlier if women were more observant, but, of course, there were cases where no lump at all formed, and yet the disease disseminated into the gland. On the previous day he saw a patient who had discovered a lump in her breast, which proved to be carcinoma, as a consequence of the warning given in Sir Berkeley Moynihan's Hastings Lecture three nights before; the lecture had probably saved her life. His experience was that pregnancy kept breast cancer in check, but that it "romped" as soon as the child was born and lactation began. The facts which the public required to know about cancer were few and simple: that early cancer was curable, that the important thing was to seek early advice, and that early cancer was almost always painless.

Dr. STANLEY WYARD (Cancer Hospital) thought that it begged the question to speak of getting cases in the early stage. In the majority of cases, by the time the disease was diagnosable it was no longer local. He was sceptical about the desire of the mass of the public for education, or its capacity for accepting it.

Dr. WILLIAM CRAMER asked whether it was proposed to operate on every suspicious case; this might mean operating on five patients for one who was found to have early carcinoma or even a condition potentially malignant.

Dr. F. J. MCCANN suggested that the only way to get patients earlier for observation was to propose a medical overhaul once a year. Every woman over 35 should pay an annual visit to a doctor for examination in view of possible breast or uterine cancer. All irregular bleeding in women demanded a careful local examination. All excessive bleeding at the menopause should give rise to a suspicion of cancer, and all bleeding after the menopause should be assumed to be due to cancer until the contrary was proved. He regarded the thickening of the cervix seen in multiparous women over 40 years of age as a precancerous condition.

Dr. T. H. C. STEVENSON referred to the great rarity on death certificates of a differentiation between cancer of the uterus and of the cervix. This differentiation during the last sixteen years had been made in so few cases that it was not worth mentioning. The uterus was the one important site of the body as to which the official returns showed an actual decline in mortality from cancer at the present time. Was this due to improved diagnosis?

Dr. JANET LANE-CLAYPON, in replying, said that data as to the growth of cancer of the breast during pregnancy were very slight. More cases properly reported under this

head were wanted. She had particulars of several cases in which she really did not know whether the primary site was the breast or the uterus. They had been operated on for the one and had died of the other. She thought cancer of the breast secondary to that of the uterus must be very rare, whereas there were more cases of primary breast cancer and secondary uterine. She was sorry that Dr. Wyard was so very pessimistic. She hoped as time went on they would be able to disprove some of his pessimism. She admitted, with Dr. Cramer, that early diagnosis was somewhat difficult, but the greater difficulty was to get hold of the patients sufficiently early.

CARCINOMA OF THE STOMACH.

AT a meeting of the Forfarshire Medical Association at University College, Dundee, on December 19th, 1926, the President, Dr. R. C. BUIST, in the chair, Dr. CHARLES KERR opened a discussion on carcinoma of the stomach.

Dr. Kerr, dealing with the medical aspect, said that the past thirty years had shown little advance in the diagnosis apart from the chemical and radiological examinations. In cases of acute type pain was usually the prominent feature; the subacute onset was associated with apparently causeless indigestion. In the chronic type there was a history of prolonged dyspepsia suggesting gastric ulcer, while palpable tumour and pain were usually late in appearing. Anorexia, increasing weakness, and fatigue were early symptoms, and in a patient of cancer age should cause hesitation in giving as a diagnosis simple gastric ulcer. In cancer of the stomach the first duty was early diagnosis, and a careful history was the first essential. In indigestion, if treatment was not followed by rapid improvement, it was no longer safe to assume that a simple ulcer was present; blood examinations, test-meals, and *x*-ray examination must be added.

Mr. JOHN ANDERSON, from the surgical standpoint, referred to the common occurrence of cancer of the stomach. In Dundee, in 1924, there were 83 deaths from cancer of the stomach and oesophagus (40 males, 43 females), 30 per cent. of all the deaths were due to cancer, and there was an incidence rate of 1 in 2,000 of the population. He was satisfied that there was definitely an acute type of cancer of the stomach, distinguished usually by haemorrhage followed by anorexia. In the chronic type indigestion was associated with offensive gastric flatus. Several recent patients had voluntarily stated that the gas tasted like petrol. Anaemia was an early symptom, and blood could generally be found in the faeces if carefully looked for. Symptoms in cancer of the pyloric half of the stomach were of two types. If the tumour was at the pylorus they were those of obstruction; if in the pre-pyloric region those of gastric ulcer. Dyspepsia in a man over 40 indicated a radiological examination, and an exploratory operation if there was suspicion of organic defect. Mr. Anderson then discussed the operative treatment with illustrative cases, and added that no case should be pronounced inoperable without an exploratory operation.

Dr. GEORGE MILLN discussed the diagnosis from the point of view of radiology, and emphasized the need for repeated examinations, and for co-operation between the radiologist and the clinician.

Professor PATRICK said that in some cases pyrexia and leucocytosis were factors in the diagnosis. Dr. CARRUTHERS referred to the presence of lactic acid and enlargement of the supraclavicular glands as diagnostic points. Dr. FOGGIE discussed the diagnosis from anaemia. Enlargement of the supraclavicular glands he regarded as indicating an advanced stage. Mr. R. C. ALEXANDER stressed the need for exploratory operations, even in some cases in the absence of *x*-ray confirmation. The CHAIRMAN suggested as a summary that it was wrong to wait for pain, tumour, or emaciation, but in the case of a patient over 40 with indigestion cancer must not be excluded unless some other condition was definitely present.

AT a meeting of the Buxton Research Society held at the Devonshire Hospital, Buxton, on January 19th, with the President, Dr. C. W. BUCKLEY, in the chair, Professor W. TOPLEY of Manchester University gave an outline of the conclusions arrived at from a survey of the bacteriology of rheumatic disease. He laid stress on the fact that infection with streptococcus must be regarded as a necessary and important factor in the etiology of all types of rheumatism. He summarized the present problems, both from the point of view of the pathologist and the clinician, and suggested lines of investigation where co-operation between them might well lead to important discovery. A discussion followed, in which most of the members present took part, on the action and scope of vaccines in the treatment of rheumatic disease.

Reviews.

CANCER: A FRENCH VIEW.

NOTWITHSTANDING the great advances in our knowledge of cancer which have been made in recent years, it has still to be confessed that we are ignorant of the cause of the disease. That is to say, if we take the two extremes of a series of phenomena, for instance, the application of *x* rays on the one hand and the appearance of cancer on the other, we are still unable to fill up the interval with a complete series of comprehensible steps connecting the one phenomenon with the other. In these circumstances it is desirable, in investigating the subject, that as far as possible all observed facts bearing on the question should be borne constantly in mind; and in this connexion a volume such as that of MENETRIER on cancer[1] cannot fail to be of service. Observations and researches have been so numerous that in default of an ability to take a bird's-eye view of the whole subject there is some danger of adopting a narrow and one-sided opinion.

Menetrier gives an excellent and very full summary, written for the most part on historical lines, clearly indicating the directions taken by research. There are eight sections, dealing respectively with the cancerous process, the chemistry, the biology and the experimental production of cancer, the stages of the cancerous process and its effects on the organism, its clinical course, its etiology, and pathogeny.

It is nearly twenty years since the first edition of the work was published, and it is interesting to note how far ideas have been modified during the intervening period. Menetrier claims that the views on the pathogeny of cancer which were expressed in the former edition have been corroborated by subsequent researches. He then held, and still holds, that cancer is a pathological process which is secondary to the action of multiple and non-specific irritative processes. Cancer has, he says, been produced experimentally by various agents which are, for the most part, non-specific—namely, by physical agents such as *x* rays, by chemical agents such as tar, and by parasitic irritants, as in the case of spiroptera. He does not exclude parasites as a cause of cancer, but he regards their action as non-specific and analogous to chemical and physical irritants. As to the *modus operandi* of these various irritants, Menetrier considers that, acting as they mostly do over prolonged periods, they cause the development, by a kind of pathological cellular selection, of a new race of cells endowed with the autonomous and agressive properties characteristic of the cancerous process. The prolonged irritation is held to bring about changes in the tissues which constitute an alteration in the environment of the cells and, by a process of adaptation in the more resistant cells, leads to the production of a race of cells possessing cancerous properties.

In view of recent observations a special interest attaches to his opinion regarding the Rous sarcoma. This is now generally regarded as a genuine neoplasm, but Menetrier appears to accept this view in a somewhat modified form. He quotes an observation of Peyron to the effect that although the tumour may be definitely regarded as a neoplasm, its metastases, and especially those situated in the viscera, appear to be due to infection by the virus in the circulation, rather than to the transport of cells from the primary growth. The tumour, therefore, according to

[1] *Nouveau Traité de Médecine et de Thérapeutique.* XIII, *Cancer: Généralités.* Par P. Menetrier. Deuxième édition. Paris: J. B. Baillière et Fils. 1926. (Roy. 8vo, pp 432; illustrated. 48 fr.)

Monetrier, exhibits the characters of a special infective disease rather than the typical cancerous process. It has a close analogy with neoplasms as regards its histology, but in its mode of dissemination it exhibits the mechanism of general infections rather than that of autonomous proliferations.

CLINICAL ASPECTS OF VENEREAL DISEASES.

Modern Clinical Syphilology,[2] by Dr. JOHN H. STOKES, professor of dermatology and syphilology, Philadelphia, is the result of work begun five years ago under the stimulus afforded by the Conference on Venereal Disease Control of the United States Public Health Service held at Washington in 1920. In his preface the author describes the book as a "monographic adventure in co-operative syphilology." It is monographic in that the writing is from the pen of one observer; it is co-operative in so far that it is the result, not only of personal observations of the author, but of those of fellow workers at the Mayo Clinic. The material of the book is, however, to a very large extent original, and there is, indeed, a cohesion about it that would have been lost had the author merely acted as an editor. Another feature of the book is that it is written particularly from the clinical point of view. Case histories are given in support of statements in the text. The result has been an increase in vividness and a gain in interest. The various paragraphs are given appropriate headings, and to each is appended a summary of conclusions. In this way the value of the book as a work of reference is enhanced. Indeed, it would be possible for the student to absorb the essence of Dr. Stokes's writing by referring only to the excellent tables, digests, and summaries scattered throughout the book. Naturally when originality is the keynote of a work there are statements which are open to criticism, and in order to keep within the limits of a single volume Dr. Stokes has been compelled to compress, so that he appears to be a trifle dogmatic in some of his statements, but on the whole the method of presentation chosen is the best that could have been adopted. The much-debated point whether the use of salvarsan preparations predisposes to the development of neuro-syphilis is discussed. The question was raised in 1911 by Finger, who reported 9 per cent. of neuro-recurrences in his first 500 cases treated by salvarsan, as contrasting with 0.25 per cent. in 2,000 cases treated with mercury and iodide. Stokes, however, from a survey of cases treated by himself and others, is of the opinion that there has been a decline in the incidence of neuro-syphilis since the introduction of salvarsan. In chapters on the hereditary disease the difficult question of marriage is discussed, as are the requirements of different authorities before permission is granted, the prevention of infection, the advisability of letting the partner know the condition of affairs, and the legal status of marriage in relation to syphilis. The book is complete and satisfactory, and should be of great value to all practitioners who are called upon to treat or to give advice on this important subject.

Colonel HARRISON'S book *The Diagnosis and Treatment of Venereal Diseases in General Practice*[3] has established itself as a standard work. The fact that it has gone through three editions since its publication in 1918, and that a revised second impression of the third edition has now been issued, is a testimony to its popularity. The new impression is intended to bring the work up to date pending the publication of a fourth edition. Although the treatment of gonorrhoea has progressed little, if at all, during the last few years, advances continue to be made in our knowledge of the treatment of syphilis. New serum tests, such as those of Sachs-Georgi, Dreyer and Ward, and fresh remedies like bismuth and sodium thiosulphate, have been introduced, and the malarial treatment of general paresis has been added to our therapeutic resources. These subjects, with others, are discussed in an appendix, and in spite of our failure to advance in the treatment of gonorrhoea some fresh paragraphs on this disease have been added. In discussing the future treatment of this intractable complaint, Colonel Harrison, like the majority of modern workers on the subject, considers that our best hopes lie in attempts to eradicate the gonococcus by remedies acting through the blood stream. Some of the various drugs that have been used as intravenous injections are described in the appendix, but it would appear from the author's remarks that the employment of these injections has met with but indifferent success in his own practice.

[2] *Modern Clinical Syphilology.* By John H. Stokes, M.D., with the co-operation of Paul A. O'Leary, M.D., William H. Goeckermann, M.D., Loren W. Shaffer, M.D., and Cleveland J. White, M.D. Philadelphia and London: W. B. Saunders Company. 1926. (Med. 8vo, pp. x + 1144; 865 figures. 55s. net.)

[3] *The Diagnosis and Treatment of Venereal Diseases in General Practice.* By L. W. Harrison, D.S.O., M.B., Ch.B., F.R.C.P.E., etc. With a chapter on the Medico-Legal Aspects, etc., by F. G. Crookshank, M.D., F.R.C.P., etc. Third edition, revised. Oxford Medical Publications. London: Milford, Oxford University Press. 1926. (Demy 8vo, pp. xx + 558; 83 figures, 18 plates. 25s. net.)

INTESTINAL TUBERCULOSIS.

DR. LAWRASON BROWN and Mr. H. L. SAMPSON, in *Intestinal Tuberculosis*,[4] propound the thesis that many digestive disturbances occurring in the course of pulmonary tuberculosis are due to ulceration of the intestine. By the usual methods employed it is extremely difficult to arrive at a diagnosis of this condition in its early stages; but by careful *x*-ray examination a diagnosis can, they say, be made in nearly every case. The importance of detecting ulceration in its early stages lies in its rapid response to treatment by heliotherapy.

The evidence on which this thesis is based occupies a large part of the book, and is not easy to summarize. Only by a study of the numerous tables and photographs provided can an intelligent appreciation of the conclusions be attained. The chief interest of their work lies in the almost extravagant claims made for roentgenological examination. Briefly, they find that when ulceration of the intestine is present, there is general hypermotility with complete, or nearly complete, emptying of the colon in twenty-four hours. The caecum, and often the ascending colon, apparently suffer from spasm, which prevents their proper filling; barium is therefore passed on, to collect in the distal portions of the bowel. Even after a barium enema the same emptiness of the caecum is found. In some cases the caecal spasm causes an ileal stasis, often with dilatation of the small intestine. As evidence of the value of this method they state that sixty-two patients in whom intestinal ulceration was diagnosed by roentgenological examination were all found either on operation or at autopsy to be suffering from tuberculous colitis. On the other hand, of forty-six patients in whom ulceration could not be detected, only two were shown at operation or necropsy to be so suffering.

The claim that intestinal ulceration, at any rate in the early stages, is benefited by heliotherapy, or ultra-violet ray treatment, depends partly on pathological and partly on clinical studies. Dr. Gardner, pathologist to the Trudeau Foundation, who was responsible for the pathological work, found that in 40.6 per cent. of patients dying with intestinal tuberculosis there was evidence of healing and of epithelial regeneration. This was noticeable especially in those that had received ultra-violet ray treatment. Clinically, it was observed that in patients who were suffering from intestinal ulceration treatment by ultra-violet rays brought about rapid improvement; within three months the condition in 91 per cent. of these cases was ameliorated. In a large proportion complete relief of symptoms was obtained. How far this improvement was due to healing of the ulcers it is impossible to say. The disappearance of symptoms, while very satisfactory in itself, is no proof of a simultaneous resolution of the lesions on which they depend. A systematic use of the roentgen rays in following the progress of these patients would have helped to elucidate this question. Unfortunately this was not done.

Besides putting forward a very interesting thesis, the authors have collected a large amount of valuable information on intestinal tuberculosis. It is a pity that their

[4] *Intestinal Tuberculosis: its Importance, Diagnosis and Treatment.* By Lawrason Brown, M.D., and Homer L. Sampson, Roentgenographer of the Trudeau Sanatorium. The Trudeau Foundation Series. London: Baillière, Tindall and Cox. 1926. (Roy. 8vo, pp. xx + 304; 112 figures. 18s. net.)

style is not more clear; many sentences are ambiguous or frankly unintelligible. Apart from this defect, they are to be congratulated on the production of a book that is alike a credit to their industry and a benefit to the medical profession.

COLLECTED PAPERS OF THE MAYO CLINIC.

THE seventeenth volume of the *Collected Papers of the Mayo Clinic and the Mayo Foundation*[5] contains references to no fewer than 167 papers, some being considerably abstracted and a large number given by title only. There are 161 contributors; many of the papers are the result of combined or team work, and some of the contributors have several papers to their names; thus Dr. William J. Mayo has seven, his brother Dr. Charles H. Mayo five, Dr. J. S. Lundy seven, Dr. V. C. Hunt six, and the late R. D. Carman, the distinguished radiologist, three. As in previous issues, the papers are arranged under the heads of the alimentary tract, urogenital organs, ductless glands, blood and circulatory organs, skin and syphilis, head, trunk and extremities, chest (a new one), brain, spinal cord, and nerves, technique, and miscellaneous. Not unexpectedly, the alimentary canal tops the list with 42 articles, though followed rather closely by the urogenital organs with 37; other double figures are the blood and circulatory organs (19), the head, trunk, and extremities (17), and skin and syphilis (12). Under miscellaneous there are twenty-two articles, and among them the reader is naturally attracted by the title "The twilight zone of medicine," in which Dr. William Mayo remarks that we perhaps stand to-day facing the twilight zone of a new ultra-microscopic world of science, and goes on to illustrate the application of physico-chemistry to disease, as shown by the way in which knowledge of the blood changes in diabetes, alkalosis, and jaundice bears on their successful treatment. Dr. F. C. Mann, director of the division of experimental surgery and pathology of the Mayo Foundation for Medical Education and Research, Graduate School, University of Minnesota, has a hand in nine papers, six of them dealing with the liver and two with peptic ulcers. In a well illustrated paper on cardiospasm, Dr. P. P. Vinson mentions that since 1908 500 cases of this condition (294 males and 206 females) have been observed at the Mayo Clinic. By forcible dilatation 75 per cent. of the patients were cured. Dr. W. A. Plummer writes on the early recognition of thyroid adenoma with hyperthyroidism and of exophthalmic goitre, and lays stress on the diagnostic value of increased appetite, loss of weight, and increased tolerance for cold. This article is appropriately followed by Dr. J. Pemberton's essay on the present-day surgical treatment of thyroid diseases. Investigation of the blood in high blood pressure led Drs. S. F. Adams and G. E. Brown to state that in 60 per cent. of the cases of benign and malignant hypertension with arterio-sclerosis but with adequate renal function the haemoglobin is more than 100 per cent.

This volume is a veritable storehouse of recent research, and therefore an invaluable, if rather expensive, source of reference.

NOTES ON BOOKS.

INTO his small book *The Air We Breathe*[6] Dr. JAMES KERR, formerly school medical officer for London, has managed to compress an enormous amount of information. The condensation is such that we are not sure that the people for whom the book is written will grasp fully its contents, notwithstanding the glossarial notes which the editor of the Modern Health Books, Professor Fraser Harris, scatters through the pages of his contributors. Dr. Kerr summarizes early notions about the air; shows how a hypothesis like the phlogiston theory may form the basis of a huge superstructure of error; describes the process of respiration; and concludes that the process is unaffected by any chemical changes or alterations likely to be met with in ordinary life. He devotes several chapters to ventilation, heating, and the removal of bodily heat, and has something to say on colds and chills. Dr. Kerr is sometimes dogmatic in his statements, as when he says, "tuberculosis is omnipresent in civilization. It attacks every one in the community." He is of opinion also that a six-hour working day, with proper administrative distribution, should suffice to enable any democracy to gain their necessary subsistence. The new hygiene, he thinks, entails a new outlook on the human body, which should no longer be regarded as "vile." The health game needs pushing in primary schools, but instruction in the principles and practice of health is still, he asserts, largely make-believe in the teachers' training colleges.

Dr. BEGGS, the medical officer of health for Middleton, Manchester, has written a little book on *The Hygiene of Infancy*.[7] There is an introduction by Professor Bostock Hill. It is in the form of a catechism—a form that undoubtedly has its value to many minds, and particularly to those who are not habituated to reading and analysing what is read. There are chapters on all matters relating to birth and infancy, from the attendance of the expectant mother at the ante-natal clinic to the evils of flea-bites. The questions are devised with good judgement, and for the most part the answers are short, sharp, and sufficient. There are some deficiencies which might well be remedied. Among the warnings to the expectant mothers there are some on "racial poisons," but there is none that attention is required if there be a vaginal discharge; and there is no reference to the necessity for carefully cleansing the infant's eyes after birth, or for special precautions in the first bath, or for setting a watch on the eyes for the first few days of life. The chapter on the law in relation to children is very good, and might well be brought to the attention of some members of local authorities with advantage.

Dr. J. DENNY SINCLAIR has translated Dr. MARC JACQUEROD'S book on *The Natural Processes of Healing in Pulmonary Tuberculosis*,[8] the French edition of which was reviewed in our issue of January 10th, 1925. For reasons apparently connected with the difficulty of translation, some parts of the original book have been omitted, notably the chapter on classification. What remains is very short, and the volume is occupied largely by reproductions of *x*-ray photographs with their attendant case histories.

Mme PHILIPPE BELLOCQ has written an interesting study on the vascular supply of the skin.[9] She has employed a radiographic method, injecting the arteries with a mixture of red lead or vermilion with oil of turpentine. After the injection has been completed the area of skin which is the immediate object of study is removed, stretched, and radiographed. Stereoscopic radiography is often found useful in order to follow the course of the arterioles from the deeper to the more superficial layers of the skin. In the illustrations given the chief characteristics of the cutaneous circulation in different areas of the surface and at different ages are easily seen. There appear to be three types of arterial supply in the skin: (1) Areas supplied by a single artery with little or no anastomosis with other vessels. This is frequent in the infant, where the development of the vessels is incomplete, and in the aged owing to senile atrophy, but occurs also in the adult in areas such as the back of the hand and foot, where circulation is not very active. (2) Areas where there is a fine arterial anastomosis, typically found on the face, the back, the palm, and sole of the adult. (3) Areas where there is a double anastomosis, both a dermic and hypodermic network of vessels. This arrangement is found in the scalp and the limbs. The book is well worth the attention of those who are concerned in the surgery of the skin, especially plastic surgery.

The forty-sixth volume of the *Transactions of the Edinburgh Obstetrical Society*[10] contains the papers read at the discussions during the session 1925-26, which were for the most part reported in our columns. The address of the retiring president, Professor B. P. Watson, dealt with the treatment of puerperal sepsis, and at subsequent meetings various communications relating to obstetrics and gynaecology were delivered. The volume contains an index, a list of office-bearers, a statement of accounts for the year ending October 31st, 1925, and a list of Fellows of the society.

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[5] *Collected Papers of the Mayo Clinic and the Mayo Foundation.* Vol. XVII, 1925. Philadelphia and London: W. B. Saunders Company. 1926. (Med. 8vo, pp. xvii + 1078; 252 figures. 60s. net.)

[6] *The Air We Breathe.* By James Kerr, M.A., M.D., D.P.H. The Modern Health Books. London: Faber and Gwyer, Ltd. 1926. (Fcap. 8vo, pp. 191. 3s. 6d. net.)

[7] *The Hygiene of Infancy: a Questionnaire for the Use of Health Visitors, and School Nurses, Teachers, Social Workers, and Mothers.* By S. T. Beggs, M.D., D.P.H. London: J. Bale, Sons, and Danielsson, Ltd. 1926. (Cr. 8vo, pp. 62. 1s. net.)

[8] *The Natural Processes of Healing in Pulmonary Tuberculosis.* By Marc Jacquerod, M.D. Translated by J. Denny Sinclair, M.B., Ch.B. London: Baillière, Tindall and Cox. 1926. (Roy. 8vo, pp. 108; 35 plates, 60 figures. 6s. net.)

[9] *Étude Anatomique des Artères de la peau chez l'homme.* Par Mme Philippe Bellocq. Paris: Masson et Cie. 1925. (Roy. 8vo, pp. 63; 29 figures. 12 fr.)

[10] *Transactions of the Edinburgh Obstetrical Society.* Session 1925-26. Vol. XLVI. Edinburgh: Oliver and Boyd. 1926. (Med. 8vo, pp. xii + 186; illustrated.)

A MEDICAL REVIEW OF SOVIET RUSSIA.*

V.—THE MEDICAL PROFESSION, SOVIET SCIENCE, AND SOVIET SANITATION.

BY

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PART II.

SOVIET GOVERNMENT AND SCIENCE.

NOT being a student of politics, I have sought to omit reference to political questions, but as everything in Russia it under the strictest political control, it is not possible to do this entirely. Previously[1] I stated that the Soviets had done what they could, with their limited means, to foster the growth of science in Russia when this did not conflict with their political principles. This was my opinion from personal observations in Russia in 1922-23, and this remains my opinion in 1927, after two more years in the country. The political revolution has fallen, however, with crushing weight on many of the foremost doctors, and there are some who think that the Soviet régime *per se* has had a deleterious effect on science, in addition to the former economical chaos. A Russian scientist of international reputation (exiled in 1922) wrote me:

"My feeling is that the Soviet authorities have done what they could with their unlimited means of destruction to kill science and inhibit its growth because free and independent thinking is in direct conflict with the Soviet political principles."

An equally pessimistic view was expressed by a younger scientist of Leningrad in 1926, who, while admitting the Soviet efforts to benefit science, said that the psychological conditions were not conducive to scientific work—that the scientists themselves had been thrown into too prominent a social light, and that they were too dependent upon politics, the will of students, etc., and too uncertain as to the future. A world-famous physiologist complained in 1924 that the breadth of view necessary to scientific production was seriously threatened by the insistent emphasis upon allegiance to Marxian dogma in the present state of politics.

The life of the scientist has been harassed in general in the same way as that of other *intelligentzia* except for those whose eminence has brought them special privileges. I refrain from detailed discussion of this, just as I would from a discussion of the internal politics of any other foreign country. Many scientists seem to enjoy a special immunity, however, from political interference, and to have more freedom of speech and other privileges than any other class, including even the high politicians.

Numbers of the older physicians are unable to adjust themselves to the present political and social changes and would like to go abroad (chiefly to America).† State patronage is not new to the Russian physician, but many have been exiled or imprisoned by one régime or another. One doctor told me that he objected to living in Soviet Russia because he did not like the present uncultured students and people with whom he had to associate, although he was getting sufficient money to carry on his scientific work. Another reason for discontent is the inability to travel, not only on account of the lack of money, but because it is a tedious undertaking to obtain permission to leave Russia, and even more difficult for a Russian to get a visa for entering other countries. It is also economically next to impossible, as since April, 1926, a Russian must pay 220 to 440 R. (£22 to £44, depending upon his category) to the Soviet Government for permission to travel outside of Russia.

Among the younger physicians, however, there is much less dissatisfaction. This is to be expected from the change in the social status of the students. It is chiefly youths from those classes which have reason to be interested in the Soviet Government (workmen, peasants, and Communists) who have the opportunity to receive a medical education—or, in other words, the class from which opposition might come, the "bourgeoisie," were largely excluded from the universities two years ago.* The present system of education seems to ensure, for the immediate future at least, that all university graduates shall be in agreement with the existing form of government. The future professors and doctors must come from the classes who now have the opportunity for education—the so-called "Red" professors. Although some of the old professors fear expulsion from their chairs when a sufficient number of supporters of the new régime have been prepared to take their places, it does not seem likely from the past policy of the Soviet Government that they will expel an efficient professor for other reason than counter-revolutionary political activity. Even during the disorder of the revolution only a few were expelled.

A serious grievance is the difficulty of giving the children a technical or university education. In the Moscow universities in 1925 I was told there were 100 vacancies for the "bourgeoisie," and in Leningrad in the technical schools 80. Other sources of education are precluded by the absence of any but Government-owned universities.†

The circumstances following on the war and revolution have caused not a few to feel, as an author of a scientific treatise wrote, that "this is more the record of a broken and shattered life than of a profitable completion of physiological work." There are others, however, outside the Communist party, who look forward with more optimism to the future, and say that they have no political grievances, and that the Government is doing all it can to help them in their work. Typical of this group, an eminent non-partisan pathologist told me:

"The conditions in Soviet Russia are much better than they were in Tsarist Russia for scientific work. As Soviet finances increase more money is being given. The Narkompros (Minister of Education) is active in making scientific work more intensive and practical, as the Communists say that socialism can exist only with science. I think that scientists will be able to work entirely independently of politics, and will not be hampered in any way by political considerations. I know of many monarchistic professors who are now receiving large amounts of money to carry on their scientific work. As we have never had democracy in Russia, I cannot say what effect it would have upon science, but I think science will prosper more under the Soviet régime than under the Tsarist Government. My chief difficulty is learning to deal with the new type of student."

The director of one of the famous research institutes in Russia, also not a Communist, told me that the Soviet policy towards science in his institute had been constructive rather than destructive, and especially so during the past two years. Science is accorded a large place in the proletariat press, and scientific books are given an increasingly wide circulation in order to bring science to the door of the peasant and workman. More genuine respect is accorded scientists by the Government than to the members of any other profession I know of. The Soviet regard for science was shown by the celebration of the two hundredth anniversary of the Academy of Sciences in Leningrad (September 5th to 10th, 1925). The event was given full, first-page accounts in the Government newspapers. The delegates from all over the world were guests of the Government, and received more cordial and hospitable treatment than even political visitors to Russia. Among other privileges they were given free use of the railroads and hotels all over Soviet Russia.

Some excellent laboratories and new lines of research have been started by the Soviet Government. There are probably more scientific workers now than formerly, though

* Previous papers on medical and scientific work in Soviet Russia by Dr. Horsley Gantt were published in the BRITISH MEDICAL JOURNAL in 1924: I, A Review of Medical Education in Soviet Russia, vol. i, p. 1055; II, Hospitals and Health Conditions, vol. ii, p. 336; III, Scientific Work, vol. ii, p. 533. The first part of section IV, on "Change in type and incidence of disease," was published on August 14th, 1926, p. 303; Part II of this section was commenced on October 23rd (p. 747) and concluded on October 30th (p. 802). Part I of Section V was published on January 29th, 1927 (p. 198).

† I found this dissatisfaction also among many German physicians in 1923.

* See Lunacharsky, *The New University*, Moscow, 1924. Although many "bourgeois" students were expelled in 1924, most of these are being gradually readmitted; during the past year official opinion has become more liberal, and more emphasis is being placed on merit.

† A majority of the university students receive free tuition and a stipend that is sufficient to live on. Students are divided into categories (Communists, workmen and peasants, or their sons, bourgeoisie, etc.), and the amount they receive depends on this categorical classification; 10 to 20 per cent. of the medical students (40 per cent. of other students) are Communists. Those from the former "bourgeois" classes instead of receiving a stipend must pay for tuition, unless they interest themselves in party politics. The percentage of workmen and peasants has risen from about 10 per cent. before the war to 93 per cent. in 1922.

they may not be so well prepared, and scientific work is being done in many new places. Among the best which the Soviet régime has initiated are the physiological laboratories for testing the effects of mineral waters and food at the various sanatoriums and health resorts, the Roentgenological Institute in Leningrad, and the Biochemical Institute of Bach in Moscow. They are models of their sort, and would be a credit to any country.* The most necessary equipment was bought (from Germany) in 1924, the first for ten years. Funds are being gradually increased, although in many places they are hardly back to the pre-war level. For example, the University of Moscow received 20,000 roubles in 1923, 200,000 in 1924, and 6,000,000 roubles will be given soon to carry out the first extensive repairs since the revolution.

The Soviet Government has not assumed a uniform attitude towards all laboratories, but has concentrated its efforts on the best. Some have received little or nothing for the past ten years; for instance, the Pathological Department of the First University of Moscow (the largest one there) has had almost nothing for eight years, and now receives only 160 roubles a month. However, these examples are rare, and will soon be things of the past. This laboratory has now been voted a large amount for the next five years. On the whole, work is progressing in spite of material difficulties. In one new institute in Moscow, for example, which I visited in November, 1926, I found the laboratory installed in a former stable; and the operating cloths covering the dog, and the caps and gowns which the doctors wore, were made of costly linen from one of the Tsar's palaces, having embossed on it the now forbidden and obsolete double eagle of imperial days. This conscription of stable and palace for the sake of the laboratory is typical, it seems to me, of the present scientific spirit in Russia.

In spite of the Soviet good intentions and efforts blunders have been made, which might be expected from a Government composed largely of workmen and peasants led by men who have inherited prejudices fostered by an oppressive Tsarism. For example, one might question some of the attempts to blend the political with the scientific, such as the following proposition of the State Scientific Council (Gosudarstvenyi Ootchenii Soviet) to the universities: that they shall submit applications for intended research eighteen months in advance to the committee, which will then decide whether the work is of value to the proletariat, and distribute problems among the laboratories to prevent parallel work. However, this ruling has never been put into effect.

The scientists themselves are left entirely to work out their scientific problems as they desire, as they did formerly. So far as I have been able to ascertain from two years' laboratory work in Soviet Russia, distribution of Soviet funds to laboratories and appointments to scientific positions are made according to merit rather than to politics. I have seen during the past year that some of the scientific laboratories whose heads are directly opposed to Soviet politics have received the greatest amount of money and equipment.

Politics does not often interfere with a doctor's having the position to which his abilities entitle him, except for administrative places, which are frequently given to party members. The heads of public health departments are usually Communists, and generally, judging from my experience, efficient organizers. In most of the scientific institutes there is a political commissar with certain administrative powers.

Present Conditions of Research Work.

From 1918 through 1922, as a result of the general state of the country, research work was done under appalling conditions and science kept alive at the cost of enormous energy and heroic sacrifices of the individual workers. During 1924 and 1925 the living conditions of the scientists, though still precarious, greatly improved, and the Soviet Government rendered considerable financial aid to science. Some laboratories have returned to normal, many new ones have been formed, and there are a few new institutes which surpass anything of their kind heretofore produced in Russia.

The spirit of research is prevalent, and is being fostered. Science will suffer during the next decade or so chiefly from the emigration of former scientists, the lack of preparation in the pupils of the war and revolution periods, the lack of adaptation between the professor and the present type of student, and from other inevitable adjustments to the new social conditions. The bringing of science under central control and Soviet patronage, though it may give a slight political colouring, is putting it on a much more stable financial basis than it was in old Russia.* The present position of science is, in my opinion, one of the most hopeful signs in Soviet Russia.

It is encouraging to hear the following ideals of the Soviet Government. It shows not only their interest in science, but their opinion of its relation to Soviet politics. As the future of science in Russia depends largely upon the Soviet attitude, I quote rather fully from the greeting sent to the Academy of Sciences on the day of its jubilee, September 5th, 1925—an event which was eagerly celebrated by the Soviet Government. It is signed by L. Kameneff and the president of the Central Executive Committee, Soviet Russia, M. Kalinine, and runs as follows:

> "The October revolution has removed the social relations which had impressed their character upon scientific work and hindered its development. The social order founded on private ownership, exploitation, and national oppression provokes military collisions and retards the subdual of the forces of Nature by man. . . . The radical reorganization of social relations . . . cannot be solved without a development of science in all its branches. The Socialist Society is creating for scientific thought conditions of true liberty . . . Lenin's estimation of the services of science is the basis of the policy of the Soviet State.
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> "During the first hard years which followed the revolution, the Soviet power, forced to defend its existence . . . could not lend assistance . . . to the scientific work. Nor could it ensure to the scientific worker such conditions of life as are necessary for the productiveness of his work. . . . Science is international. . . . Only by the joint efforts of the scientists of all nations, and only by a constant and unremitting international intercourse between all scientists, can the development of science be promoted. The Government of the Union is ready to support all endeavours bending toward an active and wide international co-operation of all scientific workers."†

One can judge of the sincerity of these statements by the increased efforts recently made, and also by comparison with the official treatment of religion and the Church. This organization, which is considered a menace by the Soviet Government, has been as openly denounced as science has been advocated.

Scientific Work for Foreigners.

I shall add a few words from my personal experience concerning the opportunities for foreigners to do scientific work in Russia. During 1925-26 I have found the conditions quite favourable for research work; they have steadily improved. Clinically Russia has always been behind, and there is little inducement to do hospital work, except perhaps in a few special subjects. The greatest facilities are for physiological and to a less extent pathological work. Many admirable schemes have arisen in public health work and social hygiene under Dr. Semashko, which are well worth studying. The therapeutical effects of climate, mineral waters, baths, etc., are being carefully worked out in many parts of Russia.‡

The professors and instructors are cordial and hospitable to foreigners, and are eager to explain their work, and to be helpful. This Russian trait lessens the time necessary to become acquainted with the work of the laboratories. The Russians themselves very modestly attribute it to their habit of garrulousness. The extreme difficulty of the

* The new Brain Institute, opened in 1926 under Dr. Fursikov, for which 200,000 roubles have been given in Moscow, appears promising.

* For example, formerly the laboratory of Professor Pavlov at the Institute of Experimental Medicine supported itself partly by selling the gastric juice of the experimental dogs; now, in spite of the economic crisis in Russia, it receives the full amount that it needs.

† The fact that Lenin endorsed science has had a great influence, especially as Leninism has assumed somewhat the character of a State religion in Russia. In nearly every Government building (which includes most important buildings) is a room called "Lenin's Corner" (*ougolok Lenina*) containing all the writings of Lenin and his picture surrounded by his aphorisms. One of these says "Without science there is no communism" (Bez naouki nyet kommunisma"). I have seen this several times in laboratories and public buildings. The rooms are decorated in red and black, and there is an atmosphere of reverence which is strongly suggestive of the former chapels. It was due to Lenin's influence that Professor Pavlov was retained in Russia after the revolution.

‡ Details of some of the research work will be given in another article.

Russian language is obviated to some extent by the fact that nearly all educated Russians speak fluently either French, German, or English.

Although there are some irregularities in the curriculum compared with other countries, the informality and spirit of helpfulness make work pleasant. German methods and ideals as well as instruments have been most conspicuous, but the English language is being more and more studied in preference to German and French, and English and American literature has rapidly gained favour since the war, and now vies with German for first place.

After the stage of reciprocal suspicion is past, the Soviet officials seem kindly disposed towards a foreigner doing scientific work. He is admitted everywhere, and allowed to see almost everything. During the whole of 1925-26 I was never hampered nor had any special restrictions placed upon me. I found the officials usually willing to help. Foreigners working in the laboratories are not only treated with official respect, but they are exempted from certain taxes and given especial privileges.

There is one unfortunate obstacle in the way of foreigners entering Russia for research work, and that is the length of time necessary to obtain a visa. This seems to be greater for English and Americans than for other nationalities.* This is explained by the fact that political relations between the Government of Soviet Russia and those of other nations have been permeated on both sides by suspicion and ill feeling, sometimes almost equal to a state of war. As the president of the Society for Cultural Relations (Mme Kameneva, the sister of Trotsky) expressed it to me, the Soviet Government must judge each case on its merits, and assure itself that those who are admitted are at least not unfriendly and will not give false or exaggerated reports of Russian conditions. I hear, however, from Dr. Semashko's office (through Dr. Scheftel) that no one desiring to do scientific medical work in Soviet Russia has ever been refused a visa.

REFERENCE.
[1] See BRITISH MEDICAL JOURNAL, September 20th, 1924, p. 533.

ATMOSPHERIC CONDITIONS IN COAL MINES.

ALIKE in its hygienic aspect as relating to the comfort and well-being of workers, and on its economic side as bearing on the question of efficiency, Report No. 39,[1] by Dr. Vernon and Mr. Bedford, to the Industrial Fatigue Research Board, is an important contribution to the study of industrial environment. The research it describes was directed to the investigation of the influence of atmospheric conditions on the working capacity and accident rate of coal-miners. Since the usual method of testing working capacity by a simple measurement of output cannot be applied to men hewing coal under widely varying conditions of ease or difficulty, it was decided to adopt two tests, a rest-pause test and a tub-filling test, as best calculated to discount these disturbing factors. The rest pauses referred to are the short voluntary rests from work which men engaged in heavy industries take every few minutes. Their duration and frequency afford a measure of the fatigue experienced. Involuntary rests, due mainly to waiting for tubs, were also taken into account. The tub-filling test is self-explanatory, but it may be observed that the tubs or trams have a mean capacity of 10 cwt., and that they are filled by both hewers and trammers, of whom the latter do haulage also.

The cooling power of the air was measured with kata-thermometers at 5½ ft. to 6 ft. above floor level. The dry and wet bulb temperatures were taken with Edney sling hygrometers, whirled at about 280 revolutions per minute. The number of men watched for an average period of 96 minutes each, at mean wet kata cooling powers ranging from 18.6 to 6.4, was 138. Their voluntary and involuntary rests were separately noted and their tub-filling times recorded. The resulting data are the actual working time per hour in minutes, the tub-filling time in minutes, and, dividing the former figure by the latter, the working capacity or rate of production, as exhibited in the following tables.

TABLE I.—*Working Capacity Based on Voluntary and Involuntary Rests.*

Mean wet kata cooling power.	Working time per hour in minutes.	Tub-filling time in minutes.	Rate of production.
18.6	52.7	8.0	52.7 ÷ 8.0 = 6.59 = 100
14.6	53.3	8.6	53.3 ÷ 8.6 = 6.20 = 94
12.9	51.0	8.5	51.0 ÷ 8.5 = 6.00 = 91
10.8	50.0	9.2	50.0 ÷ 9.2 = 5.43 = 82
9.0	48.9	9.1	48.9 ÷ 9.1 = 5.37 = 81
6.4	37.6	9.6	37.6 ÷ 9.6 = 3.92 = 59

TABLE II.—*Working Capacity Based on Voluntary Rests Only.*

Mean wet kata cooling power.	Rests in minutes per hour.	Tub-filling time in minutes.	Rate of production.
18.6	4.6	8.0	55.4 ÷ 8.0 = 6.93 = 100
14.6	5.1	8.6	54.9 ÷ 8.6 = 6.38 = 92
12.9	5.7	8.5	54.3 ÷ 8.5 = 6.39 = 92
10.8	5.5	9.2	54.5 ÷ 9.2 = 5.92 = 85
9.0	7.8	9.1	52.2 ÷ 9.1 = 5.74 = 83
6.4	10.6	9.6	49.4 ÷ 9.6 = 5.15 = 74

Table I, which includes both voluntary and involuntary rests, shows that at 18.6, with the highest cooling effect, the men worked 52.7 minutes to the hour, while at 6.4, the lowest, they worked only 37.6 minutes. Similarly, under the coolest conditions tub-filling took 8 minutes, under the warmest 9.6. The rate of production under the warmest conditions was 41 per cent. less than under the coolest. Table II, which deals with voluntary rests only, works out in the same sense as Table I, though the effect of adverse atmospheric conditions is not quite so marked.

The separate influence of air movement, which is a factor in cooling power as read from the kata-thermometer, was tested by selecting two groups of men, working at the same wet kata reading, but at mean air velocities of 15 and 51 feet a minute respectively. The low-velocity group showed rest pauses of 9.6 minutes an hour and a tub-filling time of 9 minutes. For the high-velocity group the corresponding figures were 7.8 and 8.6. The wet kata reading therefore in such cases does not tell the whole tale. It underestimates the importance of air velocity. It is, however, far more accurate than any other available index, such as the "effective temperature" recently determined in the laboratory of the American Society of Heating and Ventilating Engineers, Pittsburg, which includes a dry bulb temperature factor. For subjects of experiment at Pittsburg, doing light work and sweating little unless at high temperatures, the "effective temperature" index was significant; but the colliers of the report, doing heavy work and almost invariably streaming with perspiration, reacted to wet bulb temperatures only.

It was found that better facilities for air movement were afforded on the long-wall system of mining, in which the whole of the coal is hewn at once over a broad face, than on the pillar-and-stall system, in which headings are driven into the coal and supporting pillars left for subsequent removal. An important item is the distance of the brattice, or partition fixed between the intake and return airways, from the working face. The nearer the brattice to the face the greater the air velocity at the face and the lower the wet bulb temperature. Too great proximity, however, producing a continuous draught on the bare backs of the colliers, may cause rheumatism.

The results obtained were examined also in their relation to accident rates in coal mines and the general health of miners. The view is expressed that on the data available adverse atmospheric conditions increase the accident rate and impair general health, but that further research is required to confirm these findings, which, are, in the meantime, more or less provisional.

* In my case it was necessary to wait four months for the visa after having the recommendations of Professor Pavlov and both American and English medical authorities. For every other country of Europe, excepting three to which I did not apply, I received the visa the same hour that I asked for it.

[1] H.M. Stationery Office. Price 1s. 3d.

British Medical Journal.

SATURDAY, FEBRUARY 5TH, 1927.

THE EPILEPSIES AND LIFE ASSURANCE.

DR. S. A. KINNIER WILSON'S address on the epilepsies and life insurance, delivered before the Assurance Medical Society, and printed elsewhere in this issue (p. 221), reminds us of the great changes that have come over our conception of epilepsy. After centuries of masquerade as a disease epilepsy now stands among the symptoms. Those whose student days lie twenty to twenty-five years away will recall how well defined a disease it was considered then, in the schools at all events, and how glibly its dramatic and blessedly rememberable manifestations came tripping from the tongue. But time and observation have undermined and dethroned, and even dismembered it. So now we have "the epilepsies"—a bundle of symptoms of great variety, but linked by their common affinities with the stigmata of the now extinct disease. Sometimes the symptom has an assignable cause—say, cerebral tumour, or syphilis, or uraemia—and thereby ceases to be epilepsy. But even when no cause can be assigned the symptom is no longer by that default accounted a disease. It remains but a symptom, for which a cause must be sought or guessed or inferred. This unassorted residue still figures, it is true, as "idiopathic epilepsy," which now is a way of saying that we have detected the disguise but have not as yet identified the wearer of it.

This conception of epilepsy has certainly rid the term of some of its more sinister connotations, for under it the graver organic affections which are liable to express themselves in epileptic guise are relegated to their proper pathological category, and we are left with those instances which for the most part are the expression of something subtle enough to leave no trace on structure. What exactly that "something" may be is a question that still lacks an answer, and is likely to get it (when the time comes) piecemeal and case by case. Dr. Wilson's conclusion is that "healthy neural mechanisms may become epileptogenous without being in the remotest degree diseased," and most practitioners will be able to find support for this view among their clinical recollections. Certainly we find many causes—as, for example, digestive upsets or the poisons of microbic invasion—which are capable of precipitating convulsions in babies whose nervous systems are apparently undamaged; and it does not strain the imagination to conceive that comparable explosions may be excited in healthy adults by rare conjunctions of favouring events—psychical, biochemical, microbic, or what you will.

Along such lines it is possible to explain away reassuringly the occasional epilepsy, the isolated fit or "faint," or the half-dozen similar seizures scattered at haphazard throughout a lifetime of otherwise average health. These are the "benign" idiopathic epilepsies in respect of which Dr. Wilson pleaded for leniency from his audience of insurance examiners. It is probable that he was preaching to the converted, but his peroration shows that, so far from being aware of this, he was already resigned to failure in his preaching. "I do not hope," he says, "to be able to do more than disturb a little the preconceptions of any who, accepting precedents and traditional practice, refuse proposals coming from "epileptics" of any kind or degree. Ideas dating from a less knowledgeable era have had so long a start that one doubts if they will be overtaken. Hughlings Jackson once said that it takes twenty-five years for new conceptions of disease to penetrate the mind of the profession, and if this is needlessly cynical, it at least embodies an element of truth." To probe the general justification for this gentle and even compassionate remonstrance would be an inquiry not without interest, for there is a good deal to be said on the other side, if we may judge by the high rate of infantile mortality among new conceptions in medicine. But for the present we may confine ourselves to its bearing upon the audience to whom it was spoken.

It is a curious circumstance that when those who have no special acquaintance with the medical aspects of life assurance address themselves to the subject, they are soon to be found grumbling good-humouredly because this branch of medical practice is so much behind the times. This has been observed on several occasions and in several contexts. When doubts first began to be cast upon the importance of albuminuria the medical advisers of life assurance companies evinced no haste to alter their practice of regarding it with grave suspicion. When, upon the introduction of salvarsan, the cry went up that syphilis could now be cured in a few days, again the insurance world remained unmoved. When it was announced that renal glycosuria was not more pathological than red hair or a Roman nose, insurance examiners once more showed no undue elation, and in all these cases were reprehended for their obsolescence. Now it is the turn of epilepsy. What is it that lurks behind this phenomenon?

The key to the enigma appears to lie in nothing more profound than a variation in point of view. The clinician, interviewing a patient in his consulting room for the purpose of restoring his health, will naturally minimize ominous possibilities, in so far as he can do so without prejudice to his patient; he will make what play he can with pronouncements that carry a message of good cheer for the sufferer, however much in his heart of hearts he qualifies his own acceptance of them. He will, in short, give his patient the benefit of every doubt. And how many doubts there are! But the examiner who is acting for an insurance company owes his allegiance elsewhere, and the benefit of his doubts goes to the company he is serving. He awaits, that is to say, a completer conviction concerning new conceptions than would suffice to make him enlist them in his service for purposes of healing. And so it is, we suspect, that, having earned the reprobation of Dr. Wilson by the advice he has given in the City, the insurance medical examiner will do his best to rehabilitate himself by putting a contrary complexion upon a similar case when he meets it in his consulting room. No doubt the usage accorded to invalid lives will be found to vary somewhat from office to office, but on the whole we fancy it will be found to keep step pretty well with the sedate paces of established knowledge, if not with the Charlestons and high jinks of day-to-day discovery.

THE NURSING PROFESSION.

SAIREY GAMP is dead: her line is ended: she has left no descendants. There were good nurses before her day, and in her day; for the instinct of motherliness is an attribute of the feminine heart, and it finds expression in bringing ease to the uneasy. But there is a sharp line of cleavage between the nurse of the not far distant past and the nurse of to-day. It is no mere change of fashion, but a fundamental change in attitude. The old nurse was a nurse from inclination or accident; she may have had a " gift " for the work, a gift polished by use, but that was all. The modern nurse has something more. She is trained and disciplined; selected, shaped, and refined by knowledge and outlook. A good modern nurse is wholly feminine, full of vitality, ordered in service, faithful and unweary in well-doing, a fine responsive devoted instrument, willingly placed in the hands of Medicine for the service of the sick. This is all common knowledge, but it may be well to remind ourselves of it sometimes.

But when we come to review the position of trained nurses to-day the question arises, Does society give the individual nurse a fair deal? Society pays willing tribute to the service of the nurse. She has never before stood higher in public esteem and affection, and if status is everything, then, according to Mr. Ramsay MacDonald, who opened a recent conference on " The nursing profession " (reported at page 253), nurses should be among the happiest of mortals. But prestige is not enough, nor a banner emblazoned with the image of Florence Nightingale or of Francis of Assisi. These are proud possessions, and a great stimulus to devotion; but food and other material things, and the amenities of life, are as necessary to her well-being. It is almost true to say nurses have had too much of status and too little of stuff in recent days. The earlier of the new nurses were so devoted, so much absorbed in their mission, and so often blessed with some private resources, that they gave no thought for the morrow, or for their innumerable successors who must needs live by their work. Happily in the last score of years much of this neglect has been remedied. The indispensable work of the trained nurse has been recognized by the State. There is a General Nursing Council representative of all interests, with a register growing in volume, and the nurses have their own organizations which take a motherly interest in their collective and individual affairs.

The General Nursing Council is comparable to the General Medical Council. Both supervise education, place accredited candidates on a register, and keep the names of the registered there so long as they are worthy. There is a College of Nursing, which is comparable to the British Medical Association, for both are voluntary societies supported and controlled by the individual members of these societies. It is estimated that there are something like 100,000 trained nurses in the country; of these, 61,000 have taken advantage of the voluntary registration provided by the State. The College of Nursing, founded in 1916, has now a membership of 25,000 fully trained registered nurses, and a Student Nurse Association with 1,400 on its roll. The subscription to the college is small, so an endowment is needed of £100,000, and of this sum over three-fifths is in hand. The college has a fine headquarters by Cavendish Square, with a club adjoining (with separate membership), both buildings the gifts of Lady Cowdray. There are local branches with appropriate organization all over the country. The management is in the hands of the council of the college, which is directly nominated and elected by the postal vote of the members. Its work and aims follow very closely those of the British Medical Association. The honour and interest of the nurse are the care of the college. To this end it concerns itself with her education, and provides facilities for post-graduate study. It is convinced that the status and advancement of nurses depend upon the quality of their education. Good education means good nurses, good status, and good pay; indifferent education, the reverse. The college is ever on the alert in the scrutiny of the terms of service offered by employers of nurses, particularly by public bodies, co-operations, and hospitals. It has drawn up standards of pay which are such that self-respecting employers generally might well take note of them. It now controls the leading nursing journal, the *Nursing Times*, and through this official organ is able to exclude many undesirable advertisements—a most effective mode of bringing wisdom to the ignorant. Further, the college maintains a good library, a loan fund to assist members desiring to take up special training, a sickness insurance scheme, two convalescent homes, and a legal aid department. A quarterly bulletin is issued free, but subscription to the *Nursing Times* is extra. The college has taken a foremost part in devising the scheme for nurses' pensions which is now under consideration by many hospitals; no fewer than eighty-six London hospitals have approved it and propose to adopt it. Under that scheme the nurse provides contributions of 5 per cent. and the employer of 10 per cent. of the pay, the pension becomes payable at the age of 55 years, and if more than five annual contributions have been made these are returnable before the age of retirement if the service be left for any reason, such as marriage. The policies are transferable with the nurse from one employment to another, so that there is no check on mobility.

Such an organization as this affords some proof that the nurses are not friendless, and since the management of the college is in their own hands they are not helpless. This, however, is scarcely the conclusion that emerges from the recently published report of the Labour party on "The nursing profession," which was submitted to last week's conference. The report is largely filled with data that can be and probably were extracted from well known documents. Of new information there is little. Indeed, in the opening paragraph we read: " On such incomplete data only the most tentative conclusions can be drawn, and no attempt has been made to paint an exact picture for the country as a whole." This is unfortunate, and it would appear to be due in some measure to the fault of those who drew up the document, for we understand that the College of Nursing (and its public health section), which is most likely to know about these things, was not represented at the meetings at which the report of the Labour party was drawn up. This report directs attention to inequalities of conditions of employment, but nowhere seems to appreciate that the root of the evil is inequality of training—a fact insisted upon by the college. The cure for all the ills of the nurses is, according to the Labour party, the formation of a trade union. Is this really so? It seems to be assumed as an axiom in the report. But we find in it no evidence of how the nurses would benefit by a change from their own college to a trade union, presumably affiliated with other bodies of unlike trades. It is said that one section of nurses are trade unionists: " Nurses in mental hospitals are strongly

organized, belonging largely to the National Asylum Workers' Union, an organization with 11,000 members, all of whom, however, are not nurses." Inquiries as to the actual number of nurses in this union failed, however, to secure the desired information. But there is a Professional Union of Trained Nurses with a membership of 460; that its membership is so small is perhaps explained by a naive confession in the report: "Unfortunately, owing to the tradition of the profession, the average nurse thinks of a trade union as a body of manual workers continually taking part in strikes." We scarcely think that the events of the past year will have done much to correct this impression. So far we have only noticed the chief professional organizations of the nurses. But there are other bodies. There is the Royal British Nursing Association, which is mainly social and provident in character. There is also a new British College of Nurses, lately formed with a large endowment given by an anonymous donor; but so far we have not heard of any action by this body.

The nurses would appear to have enough organizations. If these pursue their avowed aims—better education, better terms of service, and satisfactory pensions—the material conditions of the nurse, and therewith her status, will be advanced, so long as the individual nurses continue to display that devotion to the sick which is their hall-mark. We agree with the College of Nursing that education comes first. It certainly killed Sairey Gamp and gave birth to the new nurse.

SIR CLIFFORD ALLBUTT.

AMONG the problems of the day in which Sir Clifford Allbutt, as a general physician, took a lively interest was the nature, treatment, and control of tuberculosis. He began medicine at a time when a reasoned belief in the infectious nature of consumption rested mainly on the impressive but rather crude experiments of Villemin; he was still in middle life when Koch established the specificity of the bacillus. He observed the attempts to apply the specificity in therapeutics, and he watched the efforts to control it by public health methods and by sanatoriums. It was characteristic of the freshness of mind he retained in old age that his name is perhaps best known, in this connexion, for the practical interest he showed in one of the latest schemes. From its origin in the war-clouded year 1916, the tuberculosis colony at Papworth received his active support, and he presided over it through its early period of difficulty and its later growth in size and popularity. At first the needs of tuberculous ex-soldiers dominated the scheme, and the growing realization of the possibility of re-establishing in the tuberculous some degree of economic efficiency was a source of keen satisfaction to him, contrasting as it did with the hopelessness which inevitably attached to the disease in previous years. When the Sims Woodhead Memorial Institute of Research was opened at Papworth in 1924, something of the intense interest Sir Clifford Allbutt felt found utterance in his eloquent tribute to one who had shared with him the burden which attended the institution of the scheme. We publish elsewhere in this issue (p. 259) a letter signed by a number of distinguished friends of Sir Clifford Allbutt interested in the Papworth colony, announcing that it has been decided to erect to his memory two new cottages in the colony; he was president of the colony, and the form of the memorial would, we feel sure, have pleased him, since it will still further increase the benefits afforded by an undertaking which, during his later years, was very close to his heart.

THE PRESIDENT ON HOSPITALS.

IN the SUPPLEMENT this week we print in full the address on voluntary hospitals and their future which the President of the British Medical Association, Mr. R. G. Hogarth, delivered last Sunday at Nottingham. It was given to laymen, and to judge by the wide quotations therefrom that have appeared in the newspapers on the days following its delivery, the address most certainly caught the ear and the mind of his audience. It will be no less arresting to the medical reader. As a lecture it is an example of felicitous phrasing, abounding in touches of wit and humour and human sympathy, yet full of a wisdom that is born of wide knowledge of hospital affairs. The Nottingham Hospital Sunday Fund authorities did a shrewd thing when they invited Mr. Hogarth to address their supporters, and Mr. Hogarth rose to the occasion in a most happy manner. His words read well, and they must have been better still in the hearing, for our President, as all who attended the Annual Meeting of 1926 know, can speak as felicitously and plainly as he can write. The theme of the address is one that is near to the heart of very many of our countrymen, both professional and lay. After long years of noble service given by the voluntary hospitals throughout the country, it looked for a time in the past few years as though their day was done. Doughty champions of the voluntary hospitals seemed for the moment to lose heart, and some who had been giants in their day showed by their words that they were ready to throw up a work that had become too heavy for them, and turn the trusteeship of the heritage of these hospitals and of their future guidance over to the mercies of statutory bodies. For the moment they forgot that wisdom would not die with them, and that they were likely to have successors capable of emulating or surpassing the finest achievement of their earlier and more robust days. Happily the fears of the faint-hearted are being dispelled by events. The rebound from pessimism has been as emphatic as it well could be. The voluntary hospitals are re-established upon a broader basis than ever before—a basis that is the more secure since it is carried no longer solely upon the shoulders of sympathizers among the middle and comfortable classes, but now also on the broader backs of the more numerous and regular contributors who form for the most part the clientele of the hospitals. That these regular contributors are forthcoming, and in such volume, is sure evidence of the public appreciation of the work done and yet to be done by these hospitals. The new attitude is full of promise for the future. Certainly it brings its own particular problems—problems that affect our profession very nearly. But these have been foreseen by the members of the British Medical Association, and the mode of meeting them has been worked out in detail in the Hospital Policy of the Association. There is evidence that this policy is attracting increasing attention both by medical staffs and hospital boards, and by laymen generally, just because it indicates with some degree of accuracy the lines upon which development is taking place and satisfactory methods for attaining a fair and just balance as between all the parties concerned. We congratulate Mr. Hogarth on his address, and on the wide publicity it has received. We also hope that there will be many members of our Association who will follow his example and address themselves to similar audiences. Throughout the country there are numberless members of "Brotherhoods," meeting on Sunday afternoons, who are generally happy to hear a doctor speak to them on Hospital Sunday. Nothing but good can come of public enlightenment in this matter of the hospitals, and we feel sure that when the public does appreciate the facts of the case fears that the voluntary hospitals may be benumbed by the heavy hand of officialdom (a danger which Mr. Hogarth rightly refers to) will be dispelled; and the

place of the voluntary hospitals as hospitals for all—for the poor, for the workers, for the middle-class professional workers, and even for those in "comfortable circumstances"—will be assured in any new scheme of health organization that may come through the recasting or rejuvenation of our hoary-headed Poor Law system.

THE PHYSIQUE OF WOMEN IN INDUSTRY.

THE results of an inquiry, undertaken at the request of the Medical Research Council, into the physical condition of a large number of industrial women workers were detailed by Professor E. P. Cathcart, F.R.S., of Glasgow, in the Friday evening lecture at the Royal Institution on January 28th. Dr. Cathcart said that he and his colleagues had attempted to determine by physical measurement the size, weight, and strength of women in industry, what load or weight a woman could carry without physiological disturbance, and in practice what loads were actually carried by women in the factories. For the purpose of the inquiry just over 3,000 women employed in factories were selected, and, as a check on these, over 400 others who had worked in factories but had been out of employment for a long period. Another control group consisted of 500 healthy young women in training at the college for teachers in Glasgow. The strength of the great muscles of the back and legs was tested by a pulling-up movement; the grip was also determined, and the capacity for a crushing forward movement. The first of these tests, the lifting movement, was similar to a repeated movement carried out by many of the women in their ordinary employment; the grip also was an exercise they were constantly called upon to make, but the crushing test was somewhat singular in that it brought into play a large number of muscles which were not used in factory routine. The women examined were taken from all types of industrial occupation. The heaviest work noted was carried out in chemical works at Glasgow and brickworks in the Midlands, and scarcely less severe was the work of women in the bolt and nut trade, the trade in hollow ware, and certain industries of the Potteries. A great deal of the occupation of women, however, amounted to little more than machine-minding, which was not arduous in the demand it made upon the muscles, though, of course, it required skill, and, in the case of high-speed machinery, alertness of mind and marked quickness of fingers. Dr. Cathcart regarded the girls employed in the chemical works at Glasgow, all of them over 16 years of age, as the most perfect specimens of young womanhood in industry from the point of view of physique and grace of carriage. The astonishing thing was that these young women had been born and bred in the slum districts of Glasgow, and that the great majority of their mothers and grandmothers had done the same kind of work before them. As illustrating the strenuous nature of the work undertaken by these women, Dr. Cathcart said that he had watched one of them in the chemical works move from 20 to 25 tons of raw material in a day, lifting her shovel to a height of 2½ feet. In brickworks, again, the physique and carriage of the girls were excellent. Girls carrying bricks were allowed to select their own load, which, as a rule, was over 100 lb. at a time, and was carried a distance of from 70 to 80 yards. Women conveying bricks in barrows took normally loads of from 4 to 4½ cwt. Thus, on the whole, it seemed that the factories in which hard work was done were those in which the women engaged possessed the best physique and carriage. The figures given showed that about half the women engaged in industry were between the ages of 17 and 22. Towards the latter age large numbers of them left the factory on marriage, exchanging one servitude for another, perhaps a worse! The 3,000 women examined represented, of course, but a small proportion of the total number engaged in industry, and it had been suggested that the fact that the great majority of them were young women was due to the reluctance of older women to come forward for measurement. Dr. Cathcart admitted that that might be a factor, but he did not believe that it played any large part. The average weight of the women examined was found to be 109 lb., the average height 62 inches, and the average pull of the body upwards 183 lb., the grip 58 lb., and the crushing power 50 lb. The ages of the group of 400 women no longer employed in the factories ranged between 19 and 55; in average weight there was practically no difference between them and the employed women, though in other respects there was a certain inferiority. If weight were taken as a criterion of nourishment, then employed and unemployed were equally well nourished; but what most markedly differentiated the unemployed from the employed was the figure obtained when the "total strength" was divided by the weight. That raised the question whether these women who were no longer in the factory had become undernourished and out of practice for their work. Dr. Cathcart thought the fact was simply that many, not all, of these women were disengaged because when they applied for work they were found not to be of the type of physique the employer of labour wanted. There was no question of their getting out of practice, for they did hard housework, which was of a more strenuous nature than that entailed in the majority of industrial processes. The control group, consisting of girls in training as teachers, drawn from all parts of Scotland, and ranging in age from 18 to 22, were in height, weight, and strength markedly above both the other groups. It had to be asked why girls living relatively sheltered lives were so much stronger and physically so much more capable of effort than their industrial sisters. The girls in the Glasgow training college did not come from affluent families, but at college they lived on a large open estate, where the conditions were very good. On entrance they underwent a medical examination, so that they were really picked women, and during their training their physique was carefully looked after; they had physical training, and, of course, played the ordinary outdoor games. To what extent, then, did strength depend on muscular equipment? Dr. Cathcart was of opinion that it was really not a question of physical training so far as these college women were concerned. They were being mentally trained at the same time, and the consequent mental alertness they acquired played a very large part in their power of co-ordinating their muscles. This, possibly, was one of the factors which accounted for the very marked difference between them and the industrial groups. He suggested that a possible test of fitness for industry might be found in the number of pounds representing the total strength divided by the body weight. If the quotient was below 2.5 he would be inclined to say that the person was unfit for hard, active work in a factory. Altogether the inquiry, although of relatively small compass, has supplied information relating to women factory workers which has hitherto been sadly lacking.

ELIAS ASHMOLE.

MR. R. T. GUNTHER, the historian of Oxford science, continues his labour of love in editing *The Diary and Will of Elias Ashmole*,[1] the son of a Lichfield saddler, whose crowning achievement was not, as he probably would have said, his *History of the Order and Institution of the Garter*, but the founding of the first public museum of natural history in Britain. His diary was printed twice in 1717 and again in 1774; it now appears with his will, dated September 6th, 1686, some six years before his death at the age of 76, with some additional papers, interesting notes,

[1] *The Diary and Will of Elias Ashmole.* Edited and extended from the original manuscripts by R. T. Gunther. Old Ashmolean Reprints II, Oxford. 1927. (Fcap. 8vo, pp. 183; frontispiece and 2 plates. 7s. 6d.)

and a preface by the editor, which we could wish was longer. The Diary, entitled "The Life of Elias Ashmole, Esqr.; in the way of Diary; written by Himself," contains many medical details—for example, "I had the small-pox (yet but few) as also the swine-pox and the measles"; the entry "I took my usual sweat" often occurs, and is the last in the Diary. He was attended for a time by the famous Thomas Wharton the anatomist, but in 1673 notes that after the onset of left hemiplegia, and three days before his death, Wharton sent for him at midnight, "and because some differences had formerly fallen out between us, desired to be reconciled to me, which he was." In 1651, or twenty-two years earlier than this last meeting, he writes that after "a surfeit occasioned by drinking water after venison . . . Mr. Saunders the astrologian sent me a piece of bryony root to hold in my hand, and within a quarter of an hour my stomach was freed of that great oppression, which nothing which I took from Dr. Wharton could do before." For nearly two centuries the original Ashmolean Museum in Broad Street, a picture of which is finely reproduced in this volume, was one of the treasuries of Oxford, for it contained the collections of the Tradescants, where natural science and the history of science could be quietly studied; but the editor laments that in the scientific onrush of the last century these historic collections were dispersed, and during the first quarter of the present century the building, the finest and most venerable museum building in Britain, remained derelict. It is opportune, therefore, that now, when the old Ashmolean building has been reopened for the collection of scientific instruments, which the editor has so long and so successfully laboured to perfect, he should mark the occasion by presenting us with this interesting and intimate record of its founder.

PHYSIOLOGY OF THE CLIMATE AT HIGH ALTITUDES.

A FEW years ago Professor A. Loewy was appointed director of the new Swiss Research Institute at Davos for the study of physiology and of tuberculosis at high altitudes. He has just published a review[1] of the recent researches concerning the physiology of the climate at such altitudes. He records therein the results of the researches of his colleagues and himself during the short period they have been at Davos, in addition to results of researches from other parts of the world, such as are given in the reports of the Everest expeditions and of the expedition to Cerro de Pasco in the Andes undertaken by Professor J. Barcroft and his colleagues; reference is made also to the work of Professor J. S. Haldane and his co-workers. The review deals not only with the effects of low oxygen pressure in the air, but also with the effects of increased radiation from the sun at high altitudes, to electrical changes in the air, and to changes in atmospheric cooling power, attention being directed to the work of Professor Dorno at Davos and Dr. Leonard Hill in England. The physiological and pathological changes observed centre round those produced in the heart, the blood, the respiratory system, the liver, and in the skin. It is difficult to draw definite conclusions from many of the researches, because different subjects present quite different reactions. At present no published explanation of the processes underlying the effects of high altitude, nor of those concerned in acclimatization, can be accepted without considerable reserve. The important researches of Dr. Argyll Campbell, which are now appearing in the *Journal of Physiology*, are clearing up many controversial points. These researches show that oxygen want is the one essential cause of the symptoms of altitude sickness, and that acclimatization depends on the faculty of the body to keep up the supply of oxygen to the tissues, mainly by alterations in respiration and in the blood. He finds no evidence in favour of Dr. Haldane's theory of oxygen being secreted inwards by the pulmonary alveoli. Dr. Loewy is in favour of the theory that certain protein bodies are the substances responsible for the changes observed, and he points out that injections of protein substances produce chemical, physiological, and pathological effects resembling closely those observed at high altitudes. The review contains much of interest and importance to clinicians and pathologists as well as to physiologists and hygienists, who are more directly concerned.

[1] *Ergebnisse der Hygiene, Bakteriologie, Immunitätsforschung, und experimentellen Therapie*, Vol. VIII, p. 311. A separate print of the article is published with the title *Der Heutige Stand der Physiologie des Höhlenklimas* by the firm of J. Springer, Berlin, price R.M. 3.60.

PARASITOLOGY.

PARASITOLOGY is one of the subjects which are fast leaving the care of their foster-mother, tropical medicine, and, a sturdy adolescent, is taking its proper place in the general medical world. This important advance was recognized in the rearrangement of the medical curriculum some few years ago, and one of the signs of the times is the completion of the fourth volume of the *Journal of Helminthology*, edited by Professor R. T. Leiper and published at the London School of Hygiene and Tropical Medicine, 23, Endsleigh Gardens, W.C.1, in quarterly parts (annual subscription 25s. net a volume, post free). Like the three previous volumes, the articles are in the main morphological—for morphology must be the basis of all the zoological sciences, just as it is in medicine. But there are many articles of more than passing medical significance, including a full examination of the serological methods for the diagnosis of hydatid disease, by Miss I. Hiles. In addition to a detailed survey of the literature of the complement fixation test, Miss Hiles describes a method by which "stock" antigen can be prepared from dried scolices and kept for some time in the laboratory for use on occasion. Hydatid disease is not very uncommon in Britain, and, as there is sometimes a difficulty in maintaining a supply of fresh animal material, it is a very desirable advance in technique to have an antigen always on hand for immediate diagnosis. Another article of considerable interest is by Professor Khalil of Egypt, who shows that the well clothed and well shod Egyptian policeman steadily, throughout a period of years, loses those parasites with which, when he joined the force, he was infested. This article affords good evidence of the value of clothing and discipline as measures of personal hygiene in parasite-infested countries. Other articles of direct medical interest are on *Physaloptera*—an ascaris-like worm common in man in East Africa—and on the adults of the genus *Echinococcus*, the larval forms of which are the hydatid cysts; while less directly medical, but having an importance of their own, are observations on related parasites in animals and plants, on their morphology, nomenclature, life histories, and distribution. Parasites are described from all parts of the globe and from most of the various groups of the animal kingdom—bald statements which may serve to indicate the catholic nature of the work which is appearing in the *Journal of Helminthology*.

HOSPITAL ALMONERS.

THE Joint University Council for Social Studies has issued a most valuable report on "Training for hospital social work." The chairman of this council is Mr. Frank Tillyard, professor of commercial law and dean of the Faculty of Commerce in the University of Birmingham, and a preface is written by Mr. A. M. Carr Saunders, Charles Booth professor of social science in the University of Liverpool. Until late in the nineteenth century no effort was made to check the abuses of the out-patient departments of hospitals, crowded as they were by an unselected

mass of patients. Nothing was done for them by way of after-care save what little the chaplain or matron could effect. King's College Hospital in 1876 appointed an inquiry officer with intent to keep out unsuitable patients and to refer them to their home doctors. St. Bartholomew's followed suit in 1883, and the London Hospital a year later. The first move in the right direction came from the late Sir Charles Loch, the secretary of the Charity Organization Society, which, though it is often condemned for hardness of heart, does most valuable work. The untouched field for constructive work seemed to him to be more important than the abuse and misuse of out-patient treatment. He wished to see the needy helped to carry out the treatment ordered, to prevent the abuse of a charity by those who could pay, and to be able to arrange for transfer to the Poor Law authorities where that was the most effective method of dealing with the patient. These three main heads still form the basis of the almoner's work, though its ramifications have become vastly more extensive. The first real hospital almoner was appointed by the Royal Free Hospital, where a secretary trained by the Charity Organization Society began work in 1895; for some time part of the almoner's salary was paid by the society. Most hospital almoners are women, and their talent for gentle but searching inquiry is often quite remarkable. Their first duty is to discover the patient's home conditions so that the hospital medical officer may know what he is dealing with, and then to see that the directions for treatment are carried out. They have to organize after-care for in-patients; to know all about State rights and State duties in every matter of health that can affect a patient; to discover what contribution should be made to the funds of the hospital and to get it; to check abuse by patients who can pay; to turn aside insured persons not requiring special hospital treatment and those who would be better served by statutory provision; and to administer Samaritan funds. Such an officer needs careful training, however much inborn aptitude there may be. There is now such a scheme, promoted in London and some provincial centres. Two years' training is necessary—four months' whole-time work in the office of an efficient charity organization society, nine months' college study in economics at a university college, and eleven months' practical work under the direction of an almoner at a hospital recognized as a training centre for almoners. The successful candidate cannot be accepted for independent work until the age of 22. One passage in the report, though not new in substance, seems worthy of quotation here, if only because it is written by laymen and endorsed by trained economists: "The service rendered by the medical staff to the patients who flock to hospitals is not, and cannot be expected to be, adequate to their needs. The individual patient at the hospital appears for the moment as an isolated social unit with some bodily ailment which needs correction, but the very thing which brings him there is upsetting the balance of his social environment and making fresh difficulties in an already difficult life. The doctor cannot attempt to deal with these added causes of friction. . . . We believe the time will come when no modern well equipped hospital for the treatment of any form of disability will be without its social service department, staffed by fully qualified almoners."

INFLUENZA.

In the week ending January 29th deaths from influenza in the great towns of England and Wales increased from 470 to 725, and in London from 197 to 252. The rate of increase in London is slackening considerably, and it is probable that the maximum of the epidemic there will soon be reached, if it has not already been reached. But elsewhere there has been no similar diminution of the rate of increase, so that we can hardly expect that the number of deaths recorded last week will not be exceeded.

CERTIFICATION OF THE FACT OF DEATH.

It was mentioned last week in Current Notes (SUPPLEMENT, p. 34) that the Registrar-General had issued instructions to registrars defining the procedure they should follow on receipt of a death certificate of a person who had not been seen by a doctor within fourteen days of death. We are indebted to the Registrar-General for the following additional information with regard to the regulation on this matter issued by him under date December 31st, 1926. It imposes the following requirement upon registrars of births and deaths.

"Where the contents of the medical certificate show that the deceased was not seen after death by the certifying practitioner, and was not seen alive by him within fourteen days of the date of death, the death should be reported to the coroner by the registrar."

To this new regulation the following instruction is appended:

"In the case of all medical certificates given on the new official form bearing serial numbers with the prefix 'Y' the certificate will clearly show whether the deceased was seen after death or not. In the case of a certificate given on the forms previously issued with the prefix 'X,' or any older form, the omission of the words 'as I am informed' from the blank in the relevant portion of the form is to be taken as meaning that the practitioner saw the deceased after death and is thus prepared to certify from his own knowledge that death took place. But if the registrar has any reason to suspect or believe that the omission was not deliberate, but was due to inadvertence, he should make inquiry of the practitioner in any case where the deceased was not seen alive within fourteen days of death."

We are also informed that the Secretary of State has recently called the attention of coroners to this regulation in a circular letter which contains the following observations:

"The regulation is based upon the view that responsibility ought not to be accepted by the registrar for registering the fact and cause of a death on the evidence of a certificate given in the circumstances indicated in the regulation unless he has previously given the coroner an opportunity, at any rate, of investigation or inquiry.

"When a certificate of death is referred to the coroner under the new regulation, two points may arise:

(*a*) what proof is there of the *fact* of death—that is, what proof is there that a *body* is lying within the coroner's jurisdiction?

(*b*) is the *cause* of death sufficiently established, or is investigation by the coroner required?"

The Registrar-General is of opinion that the first point can be cleared up in various ways, according to circumstances. In some cases the coroner may consider it desirable or necessary to ask the doctor why he has not seen the body, and to request him to see it in order that the doctor may amend his certificate in that respect. We are advised, however, that there is no statutory obligation on the doctor to comply. If it is impracticable for the original certifier to see the body, the coroner in parts of the country where the schedule made by the local authority enables payment for such a service may, in the Registrar-General's view, upon sufficient occasion, ask another practitioner to see the body and report to the coroner as to the fact of death, and, if necessary, also as to the cause of death. In many cases it may be found upon view by the coroner's officer, in the course of his inquiries, that the fact of death is painfully obvious.

As regards the second point, the necessity for investigation, it is for the coroner to decide whether the circumstances are such as to require investigation by him having regard to the duties imposed upon him by law. The mere reference of a certificate to the coroner by the registrar does not of itself set up an obligation to investigate. Such reference is only one of many means by which a coroner may have his attention drawn to a death and to the possibility that action by him may be necessary. It is open to a coroner to decide at once to inform the registrar that in his opinion no inquest is necessary, or to institute such inquiries and obtain such information as he may think requisite before deciding whether to inform the registrar as above or whether to hold an inquest.

THE NURSING PROFESSION.

CONFERENCE SUMMONED BY THE LABOUR PARTY.

A CONFERENCE of nursing and kindred organizations, summoned by the Labour party, was held at Caxton Hall, Westminster, on January 28th to consider the general question of better conditions for nurses. Delegates were present from about sixty organizations, including the General Nursing Council, the College of Nursing, the British Red Cross Society, the Professional Union of Trained Nurses, Queen Victoria's Jubilee Institute, and the Royal British Nurses' Association, also the nursing staffs of the principal London and some of the provincial hospitals. The British Medical Association was represented by Sir Jenner Verrall, Mr. H. S. Souttar, Dr. G. F. Buchan, and the Deputy Medical Secretary, Dr. G. C. Anderson. The Society of Medical Officers of Health and the Medical Women's Federation were also represented. The other organizations were philanthropic bodies concerned with social services and unions of hospital and other workers.

A draft report on the nursing profession was placed before the conference. It had been prepared by the Standing Joint Committee of Industrial Women's Organizations—embracing some twenty-seven different bodies—and the Labour Party's Advisory Committee on Public Health. In this document it was stated that the nursing profession was relatively worse off with regard to remuneration, hours, and general conditions of labour, despite the technical training which nurses had undergone, than any similar group of workers. Instances were quoted where nurses were required to work a 66-hour week on day duty and an 84-hour week on night duty, and the 12-hour night duty was described as being still an all too frequent occurrence. The report suggested that the training school organization should be separated from the organization of the hospital, and that a probationer should be looked upon as a student, not as a source of cheap labour for the hospital authorities. The greater part of such work as cleaning the wards should be given over to maids and orderlies, so that the probationer's time might be devoted to the study and practice of her profession. It was also recommended that the training school as an educational institution should receive grants from the educational authorities. A 48-hour standard week, with an 8-hour day, inclusive of lecture hours, was advocated, and it was stipulated that no untrained nurse should have full responsibility for a ward either day or night, that proper nurses' homes should be provided, that not less than one full day a week and one week-end a month should be allowed off duty, that the annual holiday should be not less than three weeks, and that the minimum salary during training should be £40 a year. The need of a trade union for nurses was also urged in the report, which described it as unfortunate that, owing to the tradition of the profession, the average nurse should regard a trade union as a body of manual workers continually taking part in strikes. The nurse did not realize that every profession had found organization necessary. Doctors and lawyers had formed their own professional associations, and civil servants and teachers had their trade unions. An organization of working nurses could speak effectively for the members of their calling, and with such a body in being it would be practicable to secure a national joint council representing on the one hand all the nursing services, and on the other the State, municipal, and other employers. Such a body would be able to work out a satisfactory superannuation scheme, to lay down maximum working hours and minimum standards of remuneration, and to deal with working conditions generally.

The Labour Party and Public Health.

The conference was opened by the Right Hon. J. RAMSAY MACDONALD, M.P., the leader of the Labour party. He expressed the view that the nursing profession was on the eve of revolutionary change. He begged the ladies before him not to be frightened by the word "revolutionary," which meant nothing bloody at all, but merely the ferment of ideas—the pot, so to speak, coming to the boil. He could remember perfectly well, when he was a happy patient in a large London hospital, discussing with the kindly lady who looked after his well-being this question of the nursing profession. She was most charming in her simplicity and directness. She thought of the nursing profession as something like a companionship of acolytes attending in the courts of a great temple. No doubt her idealism still remained, and he hoped it always would, but he doubted whether many nurses would express their ideas of their function in quite that form to-day. Changing conditions, economic and other, had to be faced. He dwelt upon the great necessity of improving the nurse's status, avowing himself a tremendous believer in status. "I would work for sixpence an hour if I felt that my status was good rather than for half a crown an hour, at the same job, if I felt that I was regarded merely as a hewer of wood and a drawer of water." They were apt to lose sight of the fact, said Mr. MacDonald, that while pay must, of course, be sufficient to meet the requirements of life, it was not possible by payment in pounds, shillings, and pence to draw forth the best effort of men and women. The true coinage was dignity, respect, and an admission to a common fellowship. The Labour party, he added, was not concerned only with factories and workshops; it took cognizance of all forms of social service, was just as much interested in the medical and nursing professions as in coal mining, and the public service of health was one of the essential things included in its conspectus. He said also that the Labour party did not forget to pay its homage to the past; it looked behind as well as before, had gratitude as well as hope, and was sensible of the roots as well as of the uprising growth.

Dr. SOMERVILLE HASTINGS, who opened the discussion, said that it might be asked why the Labour party, uninvited by any large or representative body of nurses, had thought fit to interest itself in the nursing profession. The experience of history showed, however, that if they waited until those in need of advice or help asked for it they might have to wait for a very long time. There were many indications that all was not well with the nursing profession. The report of the Select Committee on the General Nursing Council, published in 1925, stated that complaints were made by several witnesses of the difficulty of recruitment of nurses generally, not only in regard to the number but also the quality of the applicants. It was impossible for any party that concerned itself with matters of public health to fail to appreciate the importance to the country of an adequate supply of properly trained and efficient nurses. The two points to which they had specially addressed themselves were the need for efficient preliminary education and the dangers of exploitation of the nurses during and after training. A high standard of preliminary education was recommended because nursing must always be a highly skilled profession. The Select Committee just mentioned drew attention to the fact that many probationers had no education beyond the elementary stages, and cited this as a possible cause of the high percentage of failures to pass the State examination. That things were not much better in the United States was shown by the statement of the dean of the Yale School of Nursing, that out of a total enrolment of 15,898 nursing students, only 115 were college graduates, while 66 had had a partial college education. Those who had prepared the present report had also been impressed by the necessity for sufficient time being allowed for rest and study during training. The period of training for the nurse was often accompanied by considerable mental as well as physical strain.

Mr. G. P. BLIZARD, secretary of the Labour Party's Advisory Committee on Public Health, said that the present conference on nursing rounded off and completed the Labour party's survey of the health services of the community. That survey had started with the preventive and curative medical services, this had been followed by an inquiry two years ago into the hospital situation, and this again by the present survey of nursing. Having completed this survey of the health services of the community,

it was intended to proceed to consider the "consumer's" side of the question, and to deal during the next year or two with the health of the people from the cradle—or before the cradle, because it would embrace pre-natal services—to the grave. The Labour party had been much flattered on starting its first survey to find that the Government had set up a Consultative Council at the Ministry of Health, presided over by Lord Dawson of Penn, which followed very closely a large number of the recommendations of their (the Labour party's) original report. It was promised that special committees of inquiry should be formed to consider the nursing and midwifery services of the country, but on writing to the Ministry of Health a fortnight ago to ask if those promises had been implemented, he was informed that neither of these committees had been brought into being. Mr. Blizard estimated the number of nurses at 50,000, and mentioned that only 3,000 or 4,000 had any provision with regard to pensions.

Nurses and Trade Unionism.

The most lively, if not the most fruitful, discussion related to the question of a trade union for nurses. Mr. E. B. TURNER, F.R.C.S. (Central Council for Nursing in London), speaking as one whose professional experience of nurses went back to the days when Sairey Gamp was scarcely cold in her grave, said that as an individualist there were some things in the report with which he could not agree. He would regret to see nurses organized in a trade union if this involved doing everything that trade unions did at the present time. He would rather see them in some organization on the lines of the British Medical Association, which was not, and by its Articles could not be, a trade union, and yet exercised the very greatest influence and power. In that way nurses could make full use of collective bargaining. Mr. Turner's statement that the British Medical Association was not a trade union was received with loud ironical laughter by the trade union section of the conference.

Miss COX-DAVIES (College of Nursing) said that the recommendation in the report that the nurses should organize as the medical and legal professions had done had been already followed. True, the College of Nursing had not organized itself on trade union lines, because it did not think those lines best suited to the nursing profession. There was a nurses' trade union, the Professional Union of Trained Nurses, which, she believed, had a membership of about 400. But the College of Nursing had already secured great advantages for the profession. Mrs. BEDFORD FENWICK (British College of Nurses) said that what the profession needed was self-government and self-determination. She criticized the General Nursing Council as a very futile body, largely constituted of those who were not in sympathy with the rank and file of the profession.

Mrs. SIDNEY WEBB, who gave an interesting sketch of the powerful corporation of midwives (women) which flourished in the sixteenth and seventeenth centuries, made some of her audience restive by her criticism of one sentence in the Labour report—namely, "The only way in which nurses can deal effectively with their conditions and exercise any sort of equality in bargaining power is for the profession to be organized on trade union lines." She suggested that the word "vocational" be substituted for "trade union"; it was quite as definite a term, and she thought that nurses might well have regard to the example of the British Medical Association and the National Union of Teachers and study their reasons for dispensing with the term "trade union." Mr. Turner's challenge was taken up by Mr. GEORGE GIBSON (National Asylum Workers' Union), who commented upon the "careful distinction between the functions of the British Medical Association and the unconstitutional activities of the plebeian trade unions." When medical men, said Mr. Gibson, reached a point at which they could prevent one another from applying for a post when the salary was unsatisfactory, they had not much to learn from trade unionists. There did not seem to him to be much distinction between the withdrawal of labour because the salary was insufficient and the non-commencement of labour for a similar reason. It was not necessary for a trade union to have a strike clause; any body of persons organized on a purely vocational basis was a trade union. Mr. Gibson also made the suggestion that when the next valuation of approved societies took place some of the surplus, which would still remain in spite of the "raids," should be allocated to the provision of a panel nursing service. The nursing profession, he said, had suffered from too much patronage, even though the people who had patronized it had done so with the best intentions.

Sir JENNER VERRALL (British Medical Association) said that no one, certainly no medical man, would deny that the conditions in the nursing service were capable of improvement, but he thought that nurses should consider carefully the character of the organization they set up for bringing about improvement. After all, the success of the nursing profession would depend a good deal on how far they could persuade the medical profession, which was one of their big "consumers," that nursing efficiency was promoted, and not merely the advantages of the nurse. It was a question whether a trade union organization would assist them in that respect. Mrs. PAUL (Professional Union of Trained Nurses) said that Sir Jenner Verrall seemed to infer that the type of nurse would depend upon the character of her professional organization; it depended much more on the school where she got her training.

The discussion closed with an appeal from Dr. MARION PHILLIPS, chief woman organizer of the Labour party, and Mr. S. P. VIANT, M.P., that the various nursing organizations should follow the plan already adopted in other ranks of industry, and consent to a process of elimination, so that there might be one strong and representative body.

Conditions in the Nursing Profession.

No resolutions were taken in the course of the conference, but it was stated that all the suggestions would be carefully considered by the conveners. Lord COZENS-HARDY (National Association of Insurance Committees) confessed to disappointment at the report because it did not direct attention to the broad question of the adequacy of the nursing service, but concerned itself with the terms and conditions of employment. He also objected to a recommendation that district nursing would be better run by local authorities. Dr. A. SALTER, M.P., said that district nursing as at present organized, devoted as the nurses were, was inadequate to meet the situation in the poorer districts. Degrading methods had to be resorted to to obtain the necessary funds, such as grotesque street processions and gambles. District nursing ought to be transferred from voluntary organization to the support and control of the public authorities, and thereby a public recognition of collective responsibility for the sick would be secured. He commented upon the lack of massage services in or near the homes of the people. Mr. F. HUGHES (National Union of Clerks) said that the inadequacy of the present nursing service was largely due to bad conditions, and the position would be much worse if a number of women did not feel a definite vocation for nursing, for which they were prepared to make sacrifices; and Dr. A. H. BYGOTT declared that the inadequacy of the nursing service was so completely taken for granted by the compilers that they left it out of the report.

In the course of further discussion Miss COWLIN (General Nursing Council) asked how many so-called training schools for nurses had a separate appropriation in the hospital budget. Miss M. E. SPARSHOTT (matron, Manchester Royal Infirmary) considered that 21 was the minimum age for nurses in a general hospital. At 18 a girl might be employed in the smaller or special hospitals, but for a general hospital, where accident cases of a bad kind were continually coming in, she was immature under 21. Miss Sparshott rather deprecated the 48-hour week, which made it appear as if the nurse's duty could be, so to speak, shut off. A 56-hour week worked out better. Patients objected to a too frequent change of nurse. As to salaries, it must be borne in mind that during the probationary period the girl was receiving professional training; fathers must learn to help their daughters in their professional education as well as their sons. She demurred to the suggestion that there was no effective organization in the nursing profession. After all, it was

an organized body of nurses who got State registration through. Dr. VERE PEARSON said that now that registration had secured a certain minimum standard, it should be possible to bring about more grading above that standard, so that all nurses were not forced into one mould.

Miss A. SAYLE (Women Sanitary Inspectors and Health Visitors' Association) spoke on public health and preventive services, and mentioned that among 1,074 health visitors a recent inquiry discovered that there were twenty-two different kinds of certificates and qualifications, and that these were held in eighty-eight different combinations. She also mentioned that 300 local authorities gave ninety-one minimum salaries, varying from £120 to £244, the average, including London, being £172, and excluding London £166. Dr. STELLA CHURCHILL looked forward to the day when the health visitor would be a fully trained nurse and midwife, so that the family instead of the individual might be considered the unit, and working-class homes would be spared the embarrassment of having several different people call to look after the health of members of the same family.

In closing the proceedings, Dr. SOMERVILLE HASTINGS expressed the hope that after this faithful dealing the profession of nursing would be better able to work out its own salvation.

OBSTRUCTION OF ULTRA-VIOLET RADIATION BY AIR IMPURITIES.

THE report of the Advisory Committee of the Meteorological Office on Atmospheric Pollution for the year ending March, 1926, includes an attempt to correlate the obstruction of ultra-violet radiation as measured by the acetone blue method with the quantity of suspended impurity in the air. For this purpose the intensities of ultra-violet radiation from the sun as measured at Kingsway (London) and Greenwich have been compared with the suspended impurity as measured at Westminster.

To eliminate the effect of cloud as far as possible a selection was first made of all days during which the sky was not more than one-quarter covered with cloud. During these days the average amount of suspended impurity as measured by the Owen automatic recorder, between sunrise and sunset, was plotted with the ultra-violet radiation received. As there is no means of getting wholly rid of the effect of cloud, the close relation brought out, while quite evident, cannot be expected to follow any definite law. The records taken by the acetone blue method in various smoky towns and clean places show that the former do not receive a third of the ultra-violet radiation which reaches the latter.

Dr. Leonard Hill informs us that these records have now been made for over two years by the Department of Applied Physiology of the National Institute for Medical Research, with the help of voluntary observers in various smoky and clean places. The acetone blue solution, the use of which was first suggested by Mr. A. Webster, absorbs ultra-violet rays of shorter wave-length than about 3,300 Angström units, and are thus, Dr. Hill states, very suitable for measuring the biologically active ultra-violet rays of the sun and sky shine. The cutting out of these rays is, in his opinion, one of the worst results of smoke pollution, leading as it does to ill health, both by want of direct action of the rays on the skin, and by indirect action through impoverishment of green food, and so of milk and butter. The antirachitic vitamin is produced by ultra-violet radiation.

Dr. Owen's ingenious automatic filter and jet and dust-counters have advanced the study of smoke pollution very greatly. Relations between dust content of the atmosphere and wind, and between dustiness and visibility, have been established. The product of the number of dust particles per cubic centimetre, the relative humidity, and the visibility in miles have been found to be constant. At Paris it had been found that six miles from the fortifications there is a loss of 21 per cent. of light when the wind blows from the city. Dr. Owen has shown that smoke drifts for miles, and reaches places far from the smoky cities.

One of the most interesting of his observations is on the relation between hygroscopic salts in the air and haze. Owing to deliquescence fog may result at humidities much below the saturation point. Sea fogs are thus produced by the salt sprayed into the air. The salt does not travel far from the sea under any conditions, for owing to the rise of relative humidity at night and the consequent deliquescence of the salt the particles fall down through increase in weight. The breathing of traces of sea salt is probably an important part of the beneficial action of sea air. The salt particles may excite exudations of lymph in the pulmonary alveoli and thus have a cleansing action. Traces of iodine may be secured by breathing sea air as well as by swallowing salt water when bathing. Rain and snow are great cleansers, and in winter afford relief to the pollution of the atmosphere that goes on in cities.

Dr. Hill adds that during a recent visit to the Institute of Professor Storm van Leeuwen at Leyden he found the city air being cleaned by means of refrigeration; after warming it suitably it is passed through dust-free sleeping chambers. Many cases of asthma and chronic bronchitis are greatly relieved by occupying these chambers by night and are thus enabled to pursue their business occupations by day. Evidence has been obtained at Leyden that these patients are sensitive to certain constituents of the dust in the air, such as moulds, and that irritation of the respiratory membrane starts therefrom. He is inclined to believe that even cases of pulmonary tuberculosis may start from such sensitivity and be relieved in the first stage by a dust-free atmosphere. The Alps, Dr. Hill points out, afford both dust-free air and abundance of light. The purification of the air, he concludes, is far the most important problem of hygiene of to-day. Through this, and by education of people in the matter of a properly balanced diet and adequate ventilation and exercise, we may hope to reduce catarrhal infections.

Nova et Vetera.

A MEMORABLE OBSTETRIC TRAGEDY.

THE recent sale of objects from Claremont House, Esher, may make it opportuno to recall the tragedy which occurred there in 1817—the death, immediately after her confinement, of the Princess Charlotte of Wales, only child of the Prince Regent and wife of Prince Leopold of Saxe-Coburg, afterwards King of the Belgians. The affair aroused a torrent of criticism at the time and has provoked comment on several occasions since. What seems to be an authoritative account of the incident was published in the *London Medical Repository* of December, 1817. The same narrative, with some changes, was published separately, as an "authentic statement," with additional observations by A. T. Thomson. As the birth of an heir to the throne of England might have been the result, it is not surprising that much curiosity was awakened when it became known that the Princess Charlotte was pregnant. Contrary to the wishes of the Court that she should be confined at Kensington Palace, the Princess decided to stay at Claremont, whither she had recently gone to reside with her husband. She had selected as her attendant Sir Richard Croft, at that time the fashionable accoucheur in London, a baronet by right of succession, not created as the reward of professional merit. It does not appear that Croft had obtained any medical degree or diploma—there was no *Medical Register* in those days—but there is little doubt that he was adequately trained according to the standards of his day, and that his recognized skill, combined with his somewhat uncommon social position, had placed him in the forefront of his branch of practice. With Croft, at the Princess's own wish, was associated Dr. Matthew Baillie, one of the leading physicians in London and, incidentally, Croft's brother-in-law. Croft resided at Claremont for three weeks before the onset of labour.

The Princess had been bled frequently as an essential part of the ante-natal routine of that time, but was in excellent spirits when labour commenced at 7 p.m. on Monday, November 3rd. From the first the pains were very weak and ineffective: the membranes ruptured early,

and this, as usual, did not help matters. At the end of twenty-six hours, progress still being very slow, Croft began to feel anxious, and sent for Dr. John Sims, another specialist in midwifery of high standing. Sims arrived at Claremont at 2 a.m. on November 5th, but did not see the patient at once, as both he and Baillie thought that his appearance might unduly alarm her. After a consultation with Croft he advised against any interference with the natural process of labour.

At noon the attendants first began to suspect that the baby might be dead, but still they decided against using forceps. The Princess was finally delivered of a stillborn male child at 9 p.m. It was almost immediately recognized that there was an hour-glass contraction of the uterus, and at 9.30 p.m., after a small haemorrhage had occurred, manual separation and extraction of the placenta was performed without difficulty and with practically no further loss. At this stage all of the attendants were satisfied with the patient's condition, so that at 11 p.m. Baillie went to bed, Sims lay down still fully dressed, while Croft remained on watch in the Princess's bedroom. Shortly after midnight the patient began to get very restless and vomited, though the pulse remained firm and under a hundred. At half-past twelve her respirations became embarrassed, and in spite of the three doctors' urgent efforts with every kind of cordial, she died at 2.30 a.m., five and a half hours after delivery.

The death was announced in an Extraordinary Issue of the *London Gazette* the same day, and, if contemporary records are to be trusted, caused consternation throughout the length and breadth of the realm. Even thus early it can be conjectured that slanderous tongues were busy against the medical attendants, for a *post-mortem* examination was ordered by the King. This took place on November 7th, the body being opened by Sir Everard Home, assisted by Sir David Dundas, Mr. Brande, and the apothecary of Prince Leopold's household. The report which was published in the *Repository* claims to be "a pretty accurate statement of the appearances these gentlemen observed." It was as follows:

> "The membranes of the brain presented their natural aspect. The vessels of the pia mater were less distended with blood than was to be expected after so severe a labour. The ventricles of the brain contained very little fluid. The plexus choroides was of a pale colour, and the substance of the brain had its natural texture. The pericardium contained two ounces of red-coloured fluid. The heart itself and the lungs were in a natural state. The stomach contained nearly three pints of liquid. The colon was distended with air. The kidneys and other abdominal viscera were in a natural state. The uterus contained a *considerable* quantity of blood, and extended as high up in the abdomen as the navel; and the hour-glass contraction was still very apparent."

Baillie afterwards stated that the amount of coagulated blood found in the uterus was about one pint.

The examiners reported to the Sovereign that no blame could attach to the doctors in charge of the case and that everything possible had been done in the way of treatment.

The editors of the *Repository* expressed considerable uncertainty as to the exact cause of death, and we presume that contemporary professional opinion was correspondingly vague. It has been held by some, in the light of later knowledge, that pulmonary embolism must have occurred, a condition not recognized at that time or till many years later, but there is no direct evidence of this, whereas there is no doubt that a concealed post-partum haemorrhage took place, and this, occurring in an already exhausted patient, may be accepted as quite sufficient to account for the death.

In spite of the public vindication of Sir Richard Croft's care and skill—and let us remember in this connexion that we of the present day have no right to be severe in our judgement of the treatment adopted one hundred and nine years ago—a campaign of vilification was continued against him, and must have adversely affected his practice. This, added to the natural concern of a man of sensitive disposition at being the victim of such unfortunate circumstances, so preyed upon his mind that he shot himself at Miss Cotton's Nursing Home in Wimpole Street on February 13th, 1818, while awaiting the delivery of the wife of the Head of a College, whom he had been summoned to attend.

THE LISTER CENTENARY IN LONDON.

A COMMITTEE consisting of representatives of the Royal Society, the Royal Colleges of Physicians and Surgeons, the Royal Society of Medicine, the British Medical Association, the universities and other institutions interested, has been formed to organize a celebration in London of the centenary of the birth of Lord Lister, which falls on April 5th next. Representatives of learned societies, universities, and medical bodies in Great Britain, and delegates from the Dominions and principal foreign countries, will be present. The delegates will be received by H.M. the King at Buckingham Palace on Monday, April 4th. The programme so far arranged is as follows:

April 5th.

Reception and short addresses by some of the delegates in the Great Hall of the British Medical Association.
Conversazione at the Royal College of Surgeons of England.
Dinner given by the Merchant Taylors Company, of which Lord Lister was a member.

April 6th.

Memorial Service in Westminster Abbey: Address by the Bishop of Birmingham.
Discourses in the Robert Barnes Hall of the Royal Society of Medicine on Lister as Physiologist, Pathologist, and Surgeon, by Sir Charles Sherrington, Professor W. Bulloch, and Sir Berkeley Moynihan.
Conversazione at the rooms of the Royal Society.

The Executive Committee is constituted as follows:

Sir JOHN ROSE BRADFORD (President, Royal College of Physicians), *Chairman*.
Sir JAMES BERRY (President, Royal Society of Medicine).
Sir JOHN BLAND-SUTTON, Bt. (lately President, Royal College of Surgeons).
Professor WILLIAM BULLOCH, London Hospital.
Sir WATSON CHEYNE, Bt.
Dr. H. H. DALE (a Secretary of the Royal Society).
Mr. R. G. HOGARTH (President, British Medical Association).
Sir BERKELEY MOYNIHAN, Bt. (President, Royal College of Surgeons).
Sir HUMPHRY ROLLESTON, Bt. (lately President, Royal College of Physicians).
Sir ERNEST RUTHERFORD (President of the Royal Society).
Sir CHARLES SHERRINGTON (lately President of the Royal Society).
Sir HAROLD STILES (lately President, Royal College of Surgeons, Edinburgh).
Sir STCLAIR THOMSON (lately President, Royal Society of Medicine).
Mr. W. TROTTER, University College Hospital.
Mr. LOGAN TURNER (President, Royal College of Surgeons, Edinburgh).
Professor A. YOUNG (representing the University of Glasgow).

England and Wales.

THE LATE DR. STRANGEWAYS.

A MEMORIAL service for the late T. S. P. Strangeways, M.A.(Hon.), M.R.C.S., Huddersfield Lecturer in special pathology and director of the Cambridge Research Hospital, who died on December 23rd last, was held in the Chapel of St. John's College, of which he was a member, on the afternoon of Tuesday, January 25th. The anthem, Tennyson's "Crossing the Bar," and Faber's hymn, "Hark! Hark, my Soul!" were sung by the College choir, and the Master of St. John's (Sir Robert Scott) was present and read the lesson. An obituary notice of Dr. Strangeways was published on January 8th (p. 82), and a meeting has been held this week in London at the Royal Society of Medicine to inaugurate a Strangeways Memorial Fund, the main purpose of which, as stated in our last issue at page 206, is to complete the education of his sons.

BERRINGTON HOSPITAL, SHROPSHIRE.

The former workhouse of the Atcham Board of Guardians, which has been remodelled and equipped as a hospital, was opened by Lady Berwick on January 27th. The building was originally erected in 1792, and during the war was converted into a military hospital unit with about 500 beds. The cost of the new fittings has been met by the payment made by the War Office in respect of dilapidations. The wards have been enlarged, and there is at present accom-

modation for 140 beds, with provision for an increase up to 300 if required. A new electric light plant has been installed, and apparatus for radiant heat treatment. A spacious and well equipped operating theatre has been constructed, and nurses' quarters and an administrative block have been secured by the conversion of some old rooms. Beds are available for private as well as for Poor Law patients, and the suggestion has been made that in the future a maternity home may be established in the building.

DR. JAMIESON HURRY AND READING.

Dr. Jamieson Hurry has added another to his numerous gifts to Reading by providing a valuable collection of specimens illustrating economic botany, which have now been arranged in a special room at the Reading museum. Many of the plants were cultivated by Dr. Hurry in his garden, and he also obtained examples of foreign species. The collection was housed in his private residence until he removed to Bournemouth last year, after having spent forty years in Reading. A descriptive catalogue of the exhibits has been prepared, and this new museum of economic botany will provide facilities for giving instruction in the ways in which plants minister to human welfare. In opening the museum on January 25th, Dr. Hurry described how the collection had grown during the last twenty years, his purpose being to arrange for illustrations of the growing plants and the commercial products derived from them to be exhibited side by side for study. He hoped that in the future it might be possible to establish a small educational garden and conservatory to complete the scheme. Dr. Hurry's previous gifts to Reading include ten historical pictures dealing principally with Reading Abbey.

CORONERS' INQUESTS IN THE CITY OF LONDON AND SOUTHWARK.

During 1926 the total number of coroners' inquests in Dr. Waldo's districts of the City of London, Southwark, and Holloway Prison amounted to 519, necropsies being performed in all but 16. The inquiries included 25 cases of suicide, 158 of accidental death, and 94 of death due to natural causes; of the suicides 15 were men and 10 women. The cost of the inquests in the City was £463 and in Southwark £435. The number of fatalities caused by vehicular traffic was greater than in any previous year. In order to prevent traffic accidents Dr. Waldo secured the adoption by the Southwark Borough Council and police force in 1921 of fixed road crossings, and the idea has since been partly put into practice in Westminster. The number of deaths due to, or accelerated by, the administration of anaesthetics also rose, and Dr. Waldo repeats his recommendation that further research should be undertaken. The Coroners (Amendment) Act, 1926, which received the Royal assent at the end of the last session of Parliament, entitles medical practitioners attached to hospitals and other institutions to receive the increased statutory fee for making necropsies, and giving evidence in coroners' courts, on and after May 1st. Dr. Waldo for many years has strenuously advocated this reform.

Scotland.

INFLUENZA IN SCOTLAND.

THE Scottish Board of Health has addressed to the medical officers of health of the sixteen principal towns of Scotland and to county medical officers of health a communication asking for returns in regard to influenza. Information is desired respecting the clinical character of the disease, if present, and the general measures taken to cope with it, particularly those of international interest. Information is asked from school medical officers as to the number of children absent from school on account of influenza, from hospitals as to the number of cases admitted, and from clinics, health visitors, and general practitioners as to the number of cases being treated, as well as from factories as to the number of absentees from work on this account. The type of case encountered so far in Scotland has been generally mild, and both the catarrhal and non-catarrhal varieties have occurred.

GIFFORD LECTURES IN GLASGOW.

Dr. J. S. Haldane, LL.D., F.R.S., has begun the delivery, in the University of Glasgow, of a course of ten Gifford Lectures on "The sciences and philosophy." He began by comparing the general principles forced upon us in the isolated subjects of the physical sciences and biology. In physics and chemistry reality as it appeared in inorganic phenomena was studied. The biological sciences, on the other hand, dealt with distinctive phenomena presented by living organisms, such as conscious activity. Regarding life from a strictly physical standpoint, it had to be admitted that living structure was only an appearance like that of a flowing stream, and we were obliged to assume that the flow was one of molecules, atoms, and electrons into various combinations with one another and producing a constant flow and transformation of energy. We lived at present in an age of popular credulity as great as that of the Middle Ages, but of all the forms of popular credulity, the lecturer said that he knew none more gross than the widely spread popular belief that in the physical and chemical structure of the living organism lay the explanation of its specific behaviour. With the advance of knowledge, however, it had become increasingly apparent that those who held a purely physico-chemical conception of visible nature must have recourse to a theory of constant supernatural intervention to help out the defects of their physico-chemical theory of life. Any theory implying so-called supernatural intervention was repugnant to science, since it implied the giving up of the attempt to discover consistency and order in nature. The lecturer also proposed to maintain in later lectures that any such theory was inconsistent with religion. Descartes, the lecturer said, had in the seventeenth century attempted to reach forward towards a complete mechanistic or physico-chemical conception of the phenomena of life, and had endeavoured to show that the living body itself was produced from its material elements by mechanical processes. The weakest feature in the Cartesian physiology had been embryology. Even if this had been based upon any definite observations it could have given no account of the original formation of such an organ as the heart. It had been generally supposed that on the publication in 1859 of Darwin's *Origin of Species* a mechanistic explanation of the origin of structure had been discovered. In the lecturer's view, however, the fact of evolution took them no nearer to the answer to the question, however strongly they might be convinced that evolution was a natural process. Darwin had made a final end of the science or theology which treated creation as an act by which a vast amount of structural machinery was at one stroke brought into being and then left to act. He did not, however, put in its place any mechanical theory of how an organism maintained and transmitted its specific structure from generation to generation. The real assumption behind the mechanistic physiology of the last century was that the whole visible world of nature could be interpreted as a physico-chemical system in the sense of Newton's interpretation of the inorganic world. The essential question for the biologist was whether this assumption would fit the data of his observations. Various facts had been brought to light by the writings and experiments of Claude Bernard, for example, in connexion with the physiology of respiration, which might be regarded as nothing but a mechanical process—but there was no real prospect of a complete systematic treatment of biology on these lines as a part of physics and chemistry. The structure of animals was reproduced from generation to generation, and of this reproduction the mechanistic theory could give no account. The widest stretch of imagination could not conceive of structural machinery which went on reproducing itself indefinitely, and the more complicated the structure and chemistry discovered in an organism the more hopeless did the mechanistic explanation become. It was often said that scientific physiology was progressively revealing the mechanism of life, but what in reality it was revealing was the detail of co-ordinated activity. Descartes's formulation

of a mechanistic theory of life had led immediately to the pronouncement of a vitalistic theory by Stahl, who maintained that bodily processes were guided, both consciously and unconsciously, by the soul, the presence of this guidance distinguishing living from non-living bodies. Vitalism had almost disappeared during the development of the mechanistic movement in the middle of the last century. The real strength of vitalism now, as in the seventeenth century, was that it recognized the co-ordination which could be traced in the activities of all living organisms. Actual experience showed that there was no end to the further light which experimental investigation might throw on physiological phenomena. Vitalism was thus an unsatisfactory hypothesis from the standpoint of scientific advance. Accordingly, the mechanistic conception of life was still reckoned orthodox by many physiologists and biologists.

PROPOSED DAIRY INSTITUTE AT ABERDEEN.

At a luncheon given recently by the governing body of the Rowett Research Institute at Aberdeen, Sir John Gilmour, Secretary of State for Scotland, recalled the generosity of the late Dr. J. Q. Rowett, who had shown great interest in scientific research on agricultural problems. One of the great needs of the present time was a dairy research institute in Scotland. More than 50 per cent. of the milk and milk products used were imported, and in certain months of the year the home farmer had great difficulty in disposing of his surplus milk. Sir John Gilmour expressed the hope that the new research institute which it was proposed to establish in the south-west of Scotland under the auspices of the University of Glasgow and the West of Scotland Agricultural College would receive whole-hearted support, and that it would become a great national scientific institution, capable of dealing with both agricultural and medical problems regarding the consumption of milk and milk products. In a presidential address delivered last week to the Scottish Metropolitan Division of the National Veterinary Medical Association of Great Britain and Ireland, Professor R. G. Linton recommended the establishment of a central laboratory wherein bacteriology and chemical testing of graded milks could be carried out instead of by the local authorities. He advocated also State financial aid under easy terms of repayment to farmers wishing to create herds free from tuberculosis, but who were prevented from doing so owing to the lack of sufficient capital to meet the initial expense of reconstructing their herds.

ORTHOPAEDICS.

The question of co-operative action for the prevention and treatment of crippling was under consideration at a meeting held lately in the City Chambers, Glasgow. Dr. A. S. M. Macgregor, medical officer of health for Glasgow, occupied the chair, and among those present were Professor Leonard Findlay of the University of Glasgow; Mr. A. MacLennan, university lecturer on surgery and orthopaedics at the Royal Hospital for Sick Children; Dr. G. H. Stevenson of the orthopaedic clinic; Dr. E. T. Roberts, medical officer to the Glasgow education authority; and representative medical officers of health and medical practitioners from the West of Scotland. Mr. MacLennan explained that at present no scheme existed for co-ordinating the orthopaedic clinic of the Royal Hospital for Sick Children with medical practitioners, local authorities, and local education authorities, and that lack of continuity thence resulted alike in observation and treatment, so that many cases which left the clinic with good prospects either lost the ground which they had gained or ceased to progress. Those present at the meeting were unanimous in the view that co-operation was required. A subcommittee was appointed to obtain all necessary information and to draft the lines of a scheme.

RECENT GIFTS TO EDINBURGH ROYAL INFIRMARY.

At a meeting of managers of the Edinburgh Royal Infirmary on January 24th it was intimated that the late Mr. John Cowan, W.S., had left to the Infirmary £40,000 on the expiry of a life rent, for the purpose of endowing a ward in memory of his father, the late Lord Cowan. The important intimation was also made that a half share of the residue of this estate had been left for the purpose of equipping or assisting to equip a ward or hospital for paying patients. The amount of this bequest is not yet ascertained, nor is it known whether it will be sufficient to carry out what is by many regarded as a most eminently desirable addition to the Royal Infirmary of Edinburgh, which at present cannot make any provision for a patient who desires to pay for his maintenance and treatment. The late Mr. Edward Clark, of the firm of Messrs. R. and R. Clark, printers, recently bequeathed to the Royal Infirmary a sum of £10,000, and a sum of £1,000 to the Royal Hospital for Sick Children, Edinburgh.

Ireland.

TYRONE DIVISION.

THE inaugural meeting of the Tyrone Division of the British Medical Association was held in Omagh on January 26th. Notwithstanding that there was a storm with heavy rain the attendance of members was very large, and many of them came from the remotest part of the county and at much personal inconvenience. Dr. Edward Thompson, D.L., was elected with acclamation chairman of the Division. This was only a fitting tribute to Dr. Thomson, who has been for over fifty years a strenuous fighter for the rights of medical practitioners. He is one of the best known and most popular medical men throughout Ireland, and in the pre-boundary days was a regular attendant at medical meetings in Dublin, where his presence was always sought for and welcomed. It will be a source of much pleasure to medical men in every part of Ireland to learn that Dr. Thompson has recently resumed his practice quite restored to his former health. Dr. William Lyle (Newtownstewart) was elected vice-chairman. Dr. Lyle has also been a well known figure in medical politics, and whenever strong action had to be taken he was always a vigorous and trustworthy leader. Dr. Bradley (Fintona) was elected secretary and treasurer, and Dr. Lynch (Omagh) assistant secretary. A representative executive committee was also elected. The Irish Medical Secretary, in response to a special invitation, was present and received a very warm reception. It was much regretted that Dr. H. P. Malcolm, Honorary Secretary of the Ulster Branch, found himself at the last moment unable to attend the meeting. The members of the Division, with the Irish Medical Secretary, on the conclusion of the business of the meeting, lunched together at the Royal Arms Hotel.

PREVENTION OF SMALL-POX.

A circular letter has been addressed by the Department of Local Government and Public Health to all local health authorities in the Irish Free State pointing out that the epidemic of small-pox prevalent in England now threatens to assume a more serious character and to develop into the older type, involving grave illness and mortality. Memories still remain of the terrible visitations of 1871 and 1878; the complications which then occurred were truly protean in character—for example, multiple abscesses; gangrene; sloughing of the eyelids; inflammatory conditions of the eyes, ears, and nose, often resulting in loss of sight and partial or complete deafness; swelling of the tongue and throat, leading to difficult swallowing, embarrassed breathing and ultimate death; inflammation of the various internal organs; acute mania; paralysis; blood poisoning; joint and bone disease. The infection of small-pox might be conveyed by patients through the medium of other persons or by articles of clothing, to which it clings. It was of vital importance that the essential precautions should be adopted to render the population generally immune from the scourge. An outbreak would prove a very serious menace to the prosperity of the food and export trade, on which the financial success of the country so largely depended. It would likewise affect the tourist traffic adversely in the coming season. Vaccination or revaccination constituted the only safeguard against attack

for persons exposed to the infection of small-pox. The Minister, therefore, requested the local authority to take all necessary steps without delay to compel the defaulters to comply with the law, and to bring to the notice of all those desiring revaccination that facilities for this purpose are at their disposal gratuitously. The immunity of the country had been largely due to the vigilant care of the sanitary authorities, more especially at the ports, and to the earnest co-operation of the medical profession. It would be most unfortunate if the country's favourable position in this matter were imperilled because of apathy or wrong-headedness.

Correspondence.

CLIFFORD ALLBUTT MEMORIAL AT PAPWORTH.

SIR,—A small committee of the friends and admirers of the late Professor Sir Clifford Allbutt has decided to erect to his memory at Papworth two cottages, with which his name will be permanently associated, for men disabled by tuberculosis. The men will be chosen from among those who could not, under ordinary conditions, support themselves and their families.

Sir Clifford as President of Papworth Colony from the beginning was always deeply interested in the work there, and it is felt that there could be for him no more fitting memorial.

A certain amount of money has already been promised, and we shall be very grateful if those who would like their names added to this memorial to a great man will kindly send donations, however small, to Mrs. Marcus Dimsdale, Papworth Hall, Cambridge.

It is hoped that the cottages will be opened some time during the summer by H.R.H. the Prince of Wales, and that as many subscribers as possible will endeavour to be present.—We are, etc.,

FREDERICK MILNER.	ROBERT JONES.
HUMPHRY ROLLESTON.	P. HORTON-SMITH HARTLEY.
ARCHIBALD E. GARROD.	HUGH K. ANDERSON.
J. K. FOWLER.	H. J. GAUVAIN.

January 29th.

THE MENTAL DEFICIENCY BILL OF 1926.

SIR,—I shall be obliged if you will allow me space to reply to Sir Bryan Donkin's letter on this subject which appears in your issue of January 22nd (p. 162).

With regard to the definition of mental deficiency, I am sure that no one realizes more than does Sir Bryan the difficulty of drafting a satisfactory definition of mental defect; for he was a distinguished member of the very important Royal Commission which was responsible for the definitions of the Act of 1913, and, in spite of all the ability and knowledge brought to bear upon the subject, he admits, what is indeed common knowledge, that these definitions have occasioned considerable difficulty in administration and that their revision is necessary.

The purpose of a definition is, of course, to define the class to whom it is intended to apply and to exclude those to whom it is not intended to apply. The problem which first confronts us is, therefore, Who are the mentally defective? Speaking literally, both lunacy and dementia may be termed states of mental defect, but for many years this latter term has been used in a much more specific sense, and mental defect is now restricted to a state of incomplete mental development of such degree that the individual is incapable of managing himself or his affairs, or is in need of some degree of care, supervision, and control. It is now generally recognized that mind attains a degree of development which is adequate for the maintenance of independent existence by about the age of 18 years. It follows that interference with development before this age will produce varying degrees of mental inadequacy or defect, but that after this age it will not do so. Such interference may be of two kinds: (1) there may be an inherent defect of developmental potentiality or "urge"; and, dependent upon the degree of this, mental development will come to an end at various stages of incompleteness; (2) development may be brought to a standstill by the operation of some external agency—for example, injury or disease of the brain.

The difficulty which has been experienced in the administration of the Act is due to the failure of the existing definitions to make these points clear. Although the words "from birth or from an early age" were intended to differentiate the incompletely developed mind from the mind which, subsequent to adequate development, is in process of disorder or decay, they have often been interpreted so narrowly as to exclude persons undoubtedly defective, but in whom the defect did not manifest itself within the first few years of life. In actual practice, also, they have often been interpreted as meaning that the defect must be due to inherent causes, and hence many magistrates have refused to recognize an arrest of development brought about by injury or disease (especially if occurring after the first decade) as coming within the terms of the definition.

The problem is to devise a form of words which will include every case of defective development of mind, however produced, which is of such a degree as to necessitate care, supervision, and control—and which will exclude any other forms of mental abnormality. After careful consideration I am of the opinion that the definition contained in the bill now withdrawn does this. It says that mental defectiveness "means a condition of arrested or incomplete development of mind," and that this may be either "innate or induced after birth by disease, injury, or other cause." Sir Bryan Donkin considers this definition too vague and too comprehensive, but he suggests a form of words which is far more so, and which not only fails to include any reference to the operation of external causes, but which would include all cases arising up to the attainment of complete adolescence. If the vague term "complete adolescence" has any definite limit at all, I believe this is generally considered to be somewhere between the twenty-first and the twenty-fifth years.

Sir Bryan Donkin strongly objects to the words "or other cause," apparently on the grounds that the "cases of those with arrested development are indicated apart from those affected by 'other causes'." This is a complete misconception. The bill says clearly "arrested development . . . induced by disease, injury, or other cause," and does not deal with any cases other than those of incomplete or arrested mental development. Personally, I think the words "other cause" not perhaps necessary, since it seems to me likely that in practice all cases would be comprehended by the words "injury or disease." But Sir Bryan himself states that "sound scientific research is revealing more and more clearly the dependence of mental disorders generally on discoverable physical causes, and thus the practical knowledge of such causes must increase"; this would seem to afford some justification for the use of the words "or other cause."

In spite of the fact that the definition suggested by Sir Bryan Donkin would certainly include adults, he is nevertheless very anxious that this should not be done, and he appears to be greatly concerned because he thinks the definition in the bill does so. I have already explained why, in my opinion, this definition does not apply to any mental change arising after maturity, so that it seems necessary to attempt to discover the reason for Sir Bryan's definite statement to the contrary. He bases it upon the following words in Clause 5 (*b*):

> "If the place in which he is being so detained under the order of the court is not a prison or such a place of detention as aforesaid he shall be removed therefrom to a prison, or, if he is child or young person, to a place of detention."

Now this is really rather extraordinary of Sir Bryan, for the words relied upon have obviously no reference whatever to the age when the defect arose, but refer to the age of the person at the time he is being dealt with, which is a totally different thing. Since mental deficiency does not necessarily entail death at the age of maturity, there will clearly be many adults requiring to be dealt with; but by the definition of the bill this can only be done if the defect was produced before adult age was reached.

Sir Bryan Donkin expresses the hope that the term "moral imbecile" might be replaced by a more suitable

one, or perchance be abolished. Although I think that every moral imbecile is certifiable as feeble-minded, nevertheless in actual practice there are difficulties in doing this, so that the retention of this class serves a useful purpose. I entirely agree with Sir Bryan that the name might be altered with advantage, but if he will again study the bill he will see that this was one of its proposals.

I regret to have written at such length, but since there is no doubt, as Sir Bryan states, that such opposition to the bill as has been expressed is mainly inspired by imperfect knowledge of facts, it seemed necessary to attempt to explain the real position. I cannot see any single proposal in the bill which would not make alike for the increased protection of mental defectives and the community; and its withdrawal has caused great regret to all those whose work gives them a practical knowledge of the operation and imperfections of the original Act.—I am, etc.,

London, W.1, Jan. 29th. A. F. TREDGOLD.

MIGRAINE.

SIR,—Having been abroad for the last three months I have only just read the interesting discussion on migraine at the joint meeting of the Sections of Neurology and Psychology and of Ophthalmology of the Annual Meeting (JOURNAL, October 30th, 1926, p. 765).

What strikes me as strange is that the two chief characteristics of the headache—its periodicity and its one-sidedness—did not receive that amount of attention which might have been expected. Sufferers from migraine know very well in what respect that headache differs from the various bilateral headaches—for instance, "browache."

From a prolonged study of hemicrania, I should say that it possessed the following characteristics: it is periodic in that it has a more or less regular rhythm; it is one-sided; it sets in early in life (certainly as early as the tenth year); it becomes less severe after middle life, the intervals of immunity becoming longer; and it usually disappears after the fiftieth year of life. Further, it is almost always associated with nausea and vomiting, the latter often giving immediate relief. The headache is preceded by general chilliness, by fits of yawning, and by polyuria, and is accompanied by flushing and throbbing of the side of the head affected. The pain itself may be excruciating, and of a kind which patients describe as that of a wedge being forced into the head at the back of the eye.

I venture to say that some of these features find no explanation in the speeches of those who took part in the discussion opened by Professor Bramwell. I can, for instance, find no serious attempt to throw light on the periodicity, the chief characteristic of typical or "idiopathic" hemicrania. For the rhythmic nature of the headache is very striking. Dr. Harry Campbell called attention to this many years ago, and in 1902, in the *Edinburgh Medical Journal*, I published a paper dealing exclusively with the periodicity of hemicrania. Most sufferers know exactly when the headache is due—on the same day of the week, once a month, once every six weeks, or once every three months, as the case may be. I submit that until we have explained the periodicity of hemicrania we have not got at its real nature.

For the sake of having something definite to go upon, I venture to suggest the following explanation. Let it be granted that a toxaemia is the underlying condition (of which personally I have not the slightest doubt), and that the liver is the great organ of detoxication. The liver is constantly destroying poisons more or less perfectly in different persons; in some it detoxicates so perfectly that the poison never accumulates, and they therefore never have headache. In certain less fortunate persons the liver traps the poison less perfectly, so that some is always escaping over into the circulation. When the toxin accumulates beyond a certain concentration in the blood the syndrome of hemicrania is established. The exact period of this toxic saturation may be one of seven days, or fourteen or thirty or forty-two, giving the weekly, fortnightly, monthly, or six-weekly headache, as the case may be. In other words, the rhythm of the headache is dependent upon a pre-existing rhythm in the detoxicating capabilities of the liver.

The next thing that needs explanation is the one-sidedness of the headache.

Professor Bramwell does, indeed, ask, "Why should it be so often unilateral?" but no answer is forthcoming. Explanations based on disturbances of mesial organs such as the pituitary seem to me unlikely to be helpful. This periodic headache is typically unilateral, and we have to explain why this is so.

I confess I have no explanations which may withstand the united criticisms of the anatomist, the physiologist, and the pathologist, but I believe (in the sense of "believing where we cannot prove") that there is a factor of referred pain in hemicrania. At the risk of unmasking the combined batteries alluded to, I shall state my view: assuming that the headache is right-sided, the afferent fibres in the branches of the right gastric vagus convey their violent irritation to the Bulb, where occurs the transference to those branches of the ophthalmic and superior maxillary nerves that innervate the orbit and side of the head. I regard the gastro-intestinal catarrh and toxaemia as the source of this irritation of the afferent vagal fibres. Just as in headache of ocular origin, the pain is referred from the eye to the forehead, and in headache of dental origin from the teeth, so in hemicrania there is pain referred from the gastro-intestinal mucosa to certain cephalic nerves.

A point of minor interest has, it seems, not been recorded—namely, a remarkable exaltation of the sense of smell. Many victims of hemicrania are aware of an unpleasantly acute sense of smell; there is a wholly abnormal exaltation of this sense. Odours ordinarily only slightly disagreeable become intolerable before the attack; the smell of cooking, frying, hot grease, etc., amounts to an olfactory purgatory and accentuates the nausea.

I am glad to see that the most recently considered causal factor—the psychic—was not forgotten in the discussion, but I infer that it did not impress the meeting with the same importance with which Dr. Crookshank has invested it.[1] I should be the last person to minimize the power of mind over matter; but I confess I have a great difficulty in understanding how an unpleasant mental state can bring about a physical condition consisting of the following syndrome: a periodic headache with a rhythm of its own and with its pain accurately localized, preceded by very definite sensory, gastric, cardio-vascular, and urinary disturbances, and consisting essentially in a unilateral dilatation of cephalic vessels. Emotional blushing is always bilateral. It is difficult to see how the supposed psychic cause accounts for either the rhythm or for the one-sidedness.

Finally, no reference seems to have been made to the social position of sufferers from migraine. So far as I can gather, they belong to the more highly educated members of society. Just as the coal-heaver does not seem to suffer from acute gout, so neither, it would seem, does he from hemicrania. We have but to remember that Haller, du Bois Raymond, George Eliot, and Sir James Simpson, to name no others, were all victims of typical one-sided headache in order to have to admit that hemicrania shares with gout the distinction of being an affliction of the aristocracy of intellect.—I am, etc.,

Dane Hill, Sussex, Jan. 18th. D. FRASER-HARRIS.

[1] *Migraine*, F. G. Crookshank, M.D., Psyche Miniatures, Kegan Paul, 1926.

MIGRAINE AND ACETONURIA.

SIR,—May I point out to Dr. Allison (BRITISH MEDICAL JOURNAL, January 22nd, p. 165) that because glucose has a beneficial effect in cases of migraine where there is hypoglycaemia it does not follow that the sugar deficiency is the cause of the symptoms? The analytical data of such cases and the results of animal experiments point to the hypoglycaemia, acetonuria, and nervous symptoms all having a common origin in an hereditary or acquired hepatic deficiency, and it is owing to the fact that the administration of glucose enables the defective liver cells to carry

out their functions more efficiently that such treatment is beneficial. Levulose and other sugars have not the same effect, and when given in large doses increase the hepatic disturbance, thus possibly accounting for Dr. Allison's experience when he took saccharose in the form of "sugar, treacle, and jams to excess." During the war, when glucose was difficult to obtain, I made many experiments to find an efficient substitute, as patients who had been doing well on regular doses of dextrose found they relapsed when cane sugar was tried instead. The most satisfactory proved to be thoroughly dextrinized starch, particularly in the form of oatmeal which had been gently boiled for six to seven hours.

Although an abnormally low blood sugar is generally met with in patients suffering from migraine, such a finding is not invariable, and dextrose is not a specific for all cases; when, however, examination of the blood and excreta reveals hypoglycaemia along with evidence of hepatic inefficiency, its effect in suitable doses is striking.—I am, etc.,

London, W.1, Jan. 22nd. P. J. CAMMIDGE.

THE DANGEROUS JUNKER.

SIR,—Another death due to the use of, it is to be presumed, a valveless Junker's inhaler is recorded. Let me appeal to the staffs and boards of all hospitals to have every valveless Junker's inhaler destroyed at once, or sooner or later they will regret it.

I have heard of many similar deaths from a mistake in assembling this apparatus when valveless. With a proper valve it is impossible for this error to take place. Properly used, and tested before using, Junker's apparatus is quite safe, but it is not fool-proof. I destroyed all the valveless Junkers at the hospital I was connected with many years ago, and since then there has been no risk of error.

The risk is eliminated by pumping through several times, pointing the tube to the floor, but when in a hurry this precaution is unfortunately too often omitted.

With hundreds of young qualified men giving anaesthetics every year a percentage will trust to the apparatus having been properly fitted up without testing it.

I have been watching this matter for years, and if this letter results in hospitals forbidding the use of a valveless Junker's inhaler I shall feel that I have assisted in saving many lives in the future. I sincerely hope this letter will produce a united effort to do away with this quite unnecessary risk. It will not appeal to the experienced anaesthetist, but let him think of the more numerous less experienced men giving anaesthetics.—I am, etc.,

Bournemouth, Jan. 25th. W. J. FOSTER, F.R.C.S.

*** The death referred to by Mr. Foster is, we assume, that of an apprentice artificer in the Royal Artillery, aged 16, which occurred in the Royal Herbert Hospital, Woolwich, and was the subject of an inquest by the coroner for South-East London. Captain E. H. W. Elkington, R.A.M.C., anaesthetist, said that the operation was for enlarged tonsils, and that for the first tonsil anaesthesia was produced by chloroform and ether given by the open method; for the second a Junker's apparatus was used, through a nostril. Owing to an error in the assembling of the apparatus by a corporal entrusted with that duty, instead of chloroform vapour liquid chloroform was injected. The patient showed signs of collapse, and although he revived he died twenty hours later from acute oedema of the lungs. A verdict of accidental death was recorded. The coroner drew attention to the need for extreme care in assembling the apparatus.

SMALL-POX AND VACCINATION.

SIR,—Dr. Killick Millard's letter in your issue of January 22nd (p. 163) contains a brief quotation from Dr. Barry's report on the Sheffield outbreak of small-pox in 1887-88 which, I think, would lead any reader not familiar with the whole of that document to infer that Dr. Barry had considered that vaccination as a measure of prevention against small-pox had been a failure. Dr. Millard is a personal friend of mine, and will, I am sure, acquit me of any intention to impute to him any deliberate misrepresentation or attempt to mislead his readers; but I feel it my duty to point out that Dr. Barry's report is one of the strongest arguments in favour of vaccination which has ever been published.

The actual figures quoted by Dr. Millard are substantially correct. At that date the population of Sheffield was estimated to be 316,288. The number of vaccinated persons was 270,055, or 97.9 per cent. of the whole; the number unvaccinated was 5,823, or 2.1 per cent.

This figure for "vaccinated persons" includes people at all ages who had been vaccinated in infancy. It follows, of course, that the great majority of these, although officially "vaccinated," were actually unprotected by vaccination. Even so, the actual figures for incidence and mortality in vaccinated and unvaccinated persons are as follows:

Vaccinated persons attacked, 4,191, or 1.5 per cent.
Unvaccinated persons attacked, 553, or 9.5 per cent.
Deaths in vaccinated persons, 203, or 0.07 per cent.
Deaths in unvaccinated persons, 275, or 4.73 per cent.

The case mortality in vaccinated persons was 4.8 per cent. and in unvaccinated persons 49.7 per cent.

The last two figures do not appear in Dr. Barry's report, but have been extracted from his figures in this office. Dr. Barry, however, gives the following figures (p. xvi):

"Of children under 10 years of age, the attack rate was—
of the vaccinated 5,
of the unvaccinated 101.
The death rate of the vaccinated was 0.09.
The death rate of the unvaccinated was 44.00."

Dr. Barry adds:

"Let me state this difference in other terms: for 100,000 vaccinated children the rate of small-pox mortality actually observed in Sheffield gives 9 deaths. For 100,000 unvaccinated children, the rate of small-pox mortality actually observed gives 4,400 deaths."

The following figures may also be quoted from p. xvii:

"Per thousand of the number of persons over 10 in each class—

The attack rate in persons twice vaccinated was ...	3
The attack rate in persons once vaccinated was ...	19
The attack rate in persons not vaccinated was ...	94
The death rate among persons twice vaccinated was	0.08
The death rate among persons once vaccinated was	1.00
The death rate among persons not vaccinated was ...	51.00 "

Dr. Barry also says:

"The twice vaccinated persons over 10 years of age as compared with the unvaccinated persons of the same age living in the town, had a 31-fold immunity against attack by small-pox and had a 640-fold security against death by small-pox."

If space permitted, such quotations could be multiplied *ad libitum*; but these are, I think, sufficient to prove what were the actual facts of the outbreak in Sheffield, and what were the views of Dr. Barry, who studied the epidemic, endorsed by Dr. Buchanan, who drafted and signed the introduction to the report from which the above quotations have been excerpted.

Sheffield is again in the throes of an epidemic of small-pox, in a form which is certainly reverting from the very mild type with which we have recently been familiar to a form quite indistinguishable from "old-fashioned small-pox," with a grave and, I fear, disfiguring eruption, and in many cases with severe constitutional disturbance. The city has for many years maintained special houses for the isolation of contacts, and, of course, adequate provision has been made for the isolation and treatment of cases. I think I may claim that Sheffield has fully carried out those "modern methods of fighting the disease" which Dr. Millard states have taken the place of infant vaccination and have proved so successful. In Sheffield these measures have now failed, and we are faced with an outbreak of which no one can predict the limits.

Visiting these cases daily for purposes of diagnosis, and noting the absolute precision with which the disease singles out the unvaccinated members of the community, it is, to me, disheartening to find so eminent and so highly esteemed a colleague as Dr. Killick Millard publishing statements which will certainly be misinterpreted and misused by persons who are imbued with that curious passion called "antivaccination," a passion which I know is not shared by Dr. Millard. I use the word "passion" deliberately, with a perfectly clear recollection of Dugald Stuart's definition of "appetites, passions, and desires" in his wise but now out-of-date book on *Moral Philosophy*.

The psychology of the antivaccinist has not been

sufficiently studied. His attitude is not based on reasoning, and he, or she, cannot be convinced or converted by reason or by any amount of facts or statistics. The attitude of the antivaccinist is definitely a "passion." It is a revolt against what appears to him to be an imposition of authority, and the medical profession has failed, where in past days the Church has succeeded, in imposing a faith that it believes to be for the good of the community, largely because it has attempted to appeal to reason and not to superstition, an older and more powerful element in the mental equipment of the average man.

I have only to add that, as regards policy, Dr. Millard and I are quite in accord. He agrees that in emergencies such as that with which I am at present faced, vaccination and revaccination are essential weapons against the disease. I agree that our present system of nominal compulsion with unlimited "exemption" is chaotic and idiotic. I should like to see it abandoned, and power given by Parliament to the Minister of Health to declare any area in which small-pox exists to be "an infected area," and to make regulations dealing with such areas which should include compulsory vaccination and revaccination of the whole population in such specified areas.—I am, etc.,

FRED. E. WYNNE,
Medical Officer of Health, Sheffield, and Professor of Public Health, Sheffield University.

January 25th.

SIR,—Dr. A. F. Cameron suggests that my opinions about vaccination have apparently undergone considerable change. I can assure him that there has been no change. My faith in vaccination remains just as strong as ever—my faith in much of the current teaching about vaccination remains still rather weak.

Dr. Cameron inquires (though I rather doubt if he is really seeking enlightenment) as to my exact meaning when I say: "Under these circumstances vaccination proved quite incapable of preventing widespread and fatal epidemics." Do I mean by "vaccination," he asks, "compulsory infant vaccination"? Certainly I do. My whole letter was dealing expressly with the question of compulsory vaccination, and infant vaccination is the only form that has ever been compulsory in this country. I had hoped that the context made my meaning quite clear.

There is, however, one small correction in my letter which I should like to make. I said that in Leicester there had been no death from small-pox for twenty-one years. Actually the last death occurred in 1904, so that it should have been twenty-two years. I had forgotten that we had entered upon another year.—I am, etc.,

Health Offices, Leicester, Jan. 29th. C. KILLICK MILLARD.

GOOD AND BAD DIETS.

SIR,—I can confirm all Dr. Clarke's contentions (November 13th, 1926, p. 906) regarding the practicability of giving infants meat, fruit, and other foods much earlier than is the custom. The wide physiological capabilities of the young human digestive system are not sufficiently appreciated.

May I draw attention to two important truths regarding the food of the nursling and weaned child?

1. The human palate and digestive system are extraordinarily adaptable. If the process be begun early enough they can be educated to like and to digest with varying degrees of efficiency foods chosen from an almost infinite range. This wide adaptability would appear to apply to all omnivorous mammals—rat, pig, anthropoid, man. Consider how readily the large anthropoid takes to refined, civilized human diet. Hence the supreme importance of educating the human palate and digestive system from an early age to like and to digest efficiently such foods as experience has shown are most conducive to health. Here I may point out a disadvantage attaching to sweet foods—namely, that they tend to spoil the child's appetite for healthy unsweetened foods. This matter of educating the child's palate is of the utmost importance. On no account must we pamper the child's appetite: our aim must be to create a healthy appetite for healthy food.

2. We are all too apt to belittle the masticatory capabilities of the nursling after the seventh month and of the weaned child. Even when the infant is cutting its first teeth it should be allowed certain hard foods to bite at. I know of children who soon after the twelfth month have been capable of demolishing with avidity hard dry crusts which many a British adult would shy at for fear of damaging his teeth.

Much the most important reform needed in our diet pertains to the softness of the vegetable portion of it. I say deliberately that it would be difficult to exaggerate the importance of lessening the quantity of pappy, pultaceous, and spongy farinaceous foods we give our children, and of supplying them with an adequate share of vegetable food which compels efficient mastication, thus allowing the jaws, nasal passages, and salivary glands to develop as nature intended them, and the teeth to take up their proper positions in the gums without jamming. It is nothing less than a national duty to bring this elementary truth home to the rising generation of medical men. One of the dangers of the superscientific age in which we live is that it is apt to prevent us from seeing the wood for the trees.—I am, etc.,

London, W.1, Jan. 28th. HARRY CAMPBELL.

SPINAL ANAESTHESIA FOR OPERATIONS ON HERNIA.

SIR,—I have read with great interest Mr. Geoffrey Keynes's admirable address on "The modern treatment of hernia," published in the BRITISH MEDICAL JOURNAL of January 29th (p. 173). While entirely agreeing with him that a general anaesthetic should be avoided wherever possible, I would submit that spinal analgesia offers certain very definite advantages over the local anaesthesia that he employs. I have for some time past conducted all hernia operations under spinal analgesia, and have been much impressed by the convenience and facility of this method. Even umbilical herniae can be readily dealt with in this manner, the lumbar puncture being performed between the third and fourth lumbar vertebrae in the usual way.

In support of my contention, I would adduce the following principal advantages of spinal over local anaesthesia:

1. Greater simplicity—in that a single injection suffices to anaesthetize the whole field of operation. A great saving of time is thus effected, especially where "living sutures" of fascia lata are employed, for the cutting of these necessitates a second series of injections in the case of a local anaesthetic.
2. More complete relaxation—and thus an abolition of the respiratory movements of the abdomen, and an entire avoidance of "blowing out" of the intestines as may happen with a local anaesthetic.
3. Anaesthesia is probably of greater duration by spinal administration. In support of this I would cite a case of mine in which living sutures were used to repair a very large scrotal hernia with adherent sac; the operation lasted two and a quarter hours, and the anaesthesia was still perfect at the end of that time.

I may add that it is my custom to give a pre-operative injection of hyoscine and morphine; after this, the patient frequently sleeps throughout the operation.—I am, etc.,

London, Jan. 30th. H. A. H. HARRIS, F.R.C.S.Ed.

THE HISTORY OF DIPHTHERIA.

SIR,—In his address upon changes in types of diseases, reported in the JOURNAL of January 15th (p. 87), Sir Humphry Rolleston mentions that diphtheria appears to have been first described by Bretonneau of Tours in 1821. I have a little book entitled *Cases and Practical Remarks in Surgery*, by Benjamin Gooch of Norfolk, 1758. Gooch was the inventor of the splinting which bears his name. He describes "a species of tumor called by the Common People 'The Mumps,'" which was epidemic in Norfolk in 1740, after the hard winter of 1739, and which Gooch says he had never seen or heard of before and which was rife all the summer ("cold, dry, and unfruitful"), lasting until the autumn of 1741; he then says that, after the disappearance of this disease, the malignant sore throat first appeared. He states that this had been "accurately described by three very learned physicians." The outbreak occurred in the country about ten miles from Norwich and lasted more than ten years, but "raged and was most mortal" in 1745-46.

From his observations there appeared to be an analogy between this disease and that among horned cattle, which, he says, had been present for over forty years. He adds that Bonetus, taking notice of such a disease in the throat, says that it was preceded by a plague among cattle, "the pathognomonic of which also appeared in the throat."

It is perhaps of interest that the outbreak mentioned by Gooch occurred more than twenty years before the date of Francis Home's essay mentioned by Fleet Surgeon Home in your issue of January 22nd.—I am, etc.,

Wallasey, Jan. 26th. SEYMOUR W. DAVIES.

LAW AND TRADITION OF MEDICAL PRACTICE.

SIR,—While reluctant to continue a controversy in the atmosphere of narrow professionalism to which your last comments have reduced it, we feel bound to ask you to publish a brief and final reply.

We have been astonished at your comments, because there is nothing in our book which is not sanctioned by the best and the latest authorities. If your comments are correct, all the textbooks in the leading medical and law libraries are more unreliable than we supposed. This is surprising in view of the commendation of existing works contained in your review.

We cannot, of course, ask for sufficient space to answer your criticism in detail, but are prepared privately to produce our authority for any statement made in our book. At present we content ourselves with pointing out that it is no answer to say of an objectionable practice—for example, employment of unqualified dispensers—that thousands of medical men do this. It is nevertheless true to say that the practice is contrary to the best traditions of the profession and the "spirit of the law." Nor need one be a philosopher, or even a lawyer, to understand that spirit, which was correctly appreciated in a resolution regarding a similar point passed by the General Council on December 2nd, 1901, as being a motive to avoid any practice "fraught with danger to the public."—We are, etc.,

WILLIAM SANDERSON.
Lincoln's Inn, Jan. 29th. E. B. A. RAYNER.

*** We print Messrs. Sanderson and Rayner's letter, although it contains no attempt to justify the inaccuracies for which we have shown the writers to be responsible. The "best and the latest authorities" for what the General Medical Council has said or has not said are the official "Notices" issued by the Council, and not unnamed writers, whether ancient or modern. To take the single point selected by Messrs. Sanderson and Rayner, they have affirmed that the General Medical Council has condemned the employment as dispensers of persons technically "unqualified." In rebuttal we have alleged that the Council has recorded no such decision, and Messrs. Sanderson and Rayner allow the case to go by default. To say that such a practice is "objectionable," with the implication that it is "fraught with danger to the public," is another and a different proposition. Plainly this is a matter of opinion, and on such a point Messrs. Sanderson and Rayner's view may or may not be of some importance. The attempted substitution of a new proposition for one that has been successfully challenged is a familiar device of the distressed debater, and when practised by lawyers may perhaps be regarded in non-legal circles as an exercise in "narrow professionalism." The fact remains that the original statement by Messrs. Sanderson and Rayner was incorrect, and that they have not found sufficient grace to admit their error. And what is true in this particular instance is true also of the other inaccuracies to which we have drawn attention.

CANCER AND TRAUMA.

SIR,—In reply to Sir Lenthal Cheatle (January 29th, p. 216), may I state that for some months I have been collecting cases of cancer arising in wounds received during the late war, and so far have obtained three undoubted cases? Probably many more could be found, and I should be glad to obtain particulars of them. They are of interest as throwing light upon the length of the period of cancer induction in man.

The subject of cancer arising in scars other than those due to burns is discussed in the *Cancer Review*, 1926, 1, pp. 108 and 183 (abstract 169 of a paper by Bang, and abstract 327 of one by Iwamoto); and 1927, 2, p. 55 (abstracts 102 and 103 of papers by Tow and Itoh and by Dubreuilh and Maginel respectively). Since the latent period seems to be from twelve to forty years, it is still perhaps somewhat early to expect many cases of malignant disease arising from wounds received in the last war.—I am, etc.,

London, S.W.3, Jan. 31st. H. J. B. FRY.

Obituary.

T. R. BRADSHAW, M.D., F.R.C.P.,

Consulting Physician to the Royal Infirmary, Liverpool.

THE medical profession in Liverpool mourns, in the death of Dr. T. R. Bradshaw, on January 25th, the passing of a distinguished physician and a well loved colleague.

He was educated at Trinity College, Dublin, where he graduated M.A. in 1878 and M.D. in 1882. He became M.R.C.P. in 1890 and was elected Fellow in 1904. He was originally attracted to Liverpool by the presence there of his relative, the late Dr. Waters, physician to the Royal Infirmary. After serving as house-physician to the Infirmary he was elected a member of the honorary staff; he most worthily sustained its best traditions by the lofty standard of work and of life which he ever held before himself. From these standards he never swerved; medical science is richer as the result of his work, and colleagues, friends, and patients through contact with him sensed at once a gentleman and a gentle man. He was a most conscientious and painstaking worker, and always manifested the utmost regard for his patients—hospital no less than private. Many of his papers were of marked interest; he never grudged labour in their production, and all were expressed in polished English; by his original, laborious, and long continued work on myelopathic albumosuria in particular he clarified a previously obscure position and made a definite addition to medical science. All his medical work was sound and reliable, and in at least one instance (that of albumosuria) it was pioneer. But distinguished as that work was, it was not because of it—or not mainly because of it—that he was admired and is now mourned. It has truly been said of him that he never said an unkind word about anyone; he was a splendid colleague and loyal to a degree. Medicine is the richer by his work, and the man himself is enshrined in the hearts of those who knew him.

He was President of the Liverpool Medical Institution in 1910 and 1911, and became university lecturer in clinical medicine. He had also been physician to the Stanley Hospital, Liverpool, and consulting physician to the Liverpool Samaritan Hospital for Women. For many years he took an active interest in the work of the British Medical Association; he was a member of the Council of the Lancashire and Cheshire Branch for three periods between 1892 and 1921, a member of the Parliamentary Bills Committee from 1898 to 1902, and a member of the Central Council from 1906 to 1909. He was a member of the Executive Committee of the Liverpool Central Division from 1904 to 1909, and of the Liverpool Division in 1912 and 1917-18. He was a member of the Representative Body in 1919-20; in 1912 he was vice-president of the Section of Medicine at the Annual Meeting in Liverpool. During the war he did strenuous work at the First Western General Hospital, with the rank of major. When he retired he went to reside at Mold, in Flintshire. The funeral took place on January 28th at the old country church at Nerquis, near Mold.

T. RIDLEY BAILEY, M.D., C.M.ED.,

Medical Officer of Health, Bilston.

BY the death of Dr. Ridley Bailey, briefly announced in our last issue, the profession in the Midlands has lost one of its most valued members, who for many years took an enthusiastic part in the local and central work of the British Medical Association. He died on January 25th at the Queen Victoria Nursing Institute, Wolverhampton, where he had lately undergone a severe operation.

Thomas Ridley Bailey, the son of Richard Bailey of Durham, was born on October 17th, 1859. He studied medicine at the University of Edinburgh, graduated M.B., C.M. in 1882, and proceeded M.D., with honours, in 1887. Soon after graduation he made his home at Bilston, Staffordshire, where he began general practice in partnership with the late Dr. Larkin, and in 1885, when only 25, was appointed part-time medical officer of health for the urban district, a post he held until the time of his death. He was also medical officer and public vaccinator under the Wolverhampton Union, medical officer to the Bilston Isolation Hospital, school medical officer, and certifying factory surgeon. His active work for the British Medical Association commenced in 1888 when he became a member of the Staffordshire Branch Council, and from that time onwards he was prominently associated with the work of the Branch, holding office as its President in 1896 and vice-president in the two following years. He was vice-chairman of the South Staffordshire Division in 1907 and 1924, and chairman in 1908 and 1922, and had acted as deputy representative of the Division in the Representative Body since 1921. For many years also he was a familiar figure at the headquarters of the Association in London as a member of the Insurance Acts, Medico-Political, Public Health, and Welsh Committees, and of various subcommittees. He served as chairman of the Public Health Committee in 1920-21, and again in 1924-26, and since his election to the Central Council in 1920 had attended regularly at all Council meetings. The esteem in which Dr. Ridley Bailey was held by his local colleagues is further shown by his appointment as chairman of the Staffordshire Local Medical and Panel Committee, and his long period of office as representative of the medical profession upon the Insurance Committee for the county.

He was for many years a fellow of the Society of Medical Officers of Health, a past-president of its Midland Branch, and in recent times one of the representatives of the British Medical Association on its council. He was also a member of the council both of the Poor Law Medical Officers Association and the Association of Public Vaccinators.

Dr. F. MILNES BLUMER of Stafford, a close friend of forty years' standing, sends the following personal appreciation:

Of a happy, bright, and cheerful disposition, Ridley Bailey attracted to himself a large circle of friends, not only in his adopted county of Staffordshire, but also among the many men from all parts of the country with whom he became associated on the various public bodies on which he served. His strong personality was manifest wherever he foregathered with his friends, and his almost buoyant spirits and general optimism, combined with a dry sense of humour, made him a general favourite. He was a shrewd judge of character, and had only contempt for those who entered public life merely from ulterior and personal motives. Such a man was bound to have strong likes and dislikes, and, while he was careful to suppress the latter, the former were shown in the many strong and lasting friendships he made. As a public speaker few medical men could equal him. He had a great command of language, which he phrased with an elegance pleasing to listen to, and he spoke with an earnestness both impressive and convincing. At social functions his oratory was always an outstanding feature. Quite early in his professional life Ridley Bailey was attracted by medical politics, and for forty years he has devoted his spare time to the service of his professional-brethren. That such was appreciated is manifested not only by the number and variety of public bodies upon which he served, but also by the fact that he rose to the highest positions in them all. Clear thinking and far vision were natural gifts with him, and when he had come to a decision which he thought was right he would support it with clear argument and determination, which won for him much support. His grip on public business was really astonishing, seeing that throughout all these years he was engaged in busy general practice and in public health work as M.O.H. for Bilston. He was an exceptionally good chairman, firm and scrupulously fair—a pattern in conduct for many to copy. Ridley Bailey worked up to the day on which he entered the nursing home, and in his last illness he approached the inevitable end with that peacefulness and courage which come to the man of a strong faith such as he had, and with the knowledge that his life's work had been spent—and well spent—in the service of others.

The funeral service was held at St. Leonard's, Bilston, on January 28th. There was a large gathering of councillors and officials from Bilston, and the medical profession was represented by Sir John Robertson (M.O.H., Birmingham); Dr. Waddell (Chairman, South Staffordshire Division); Mr. A. W. Nuthall, representing the Council of the British Medical Association; Dr. Craig (Chairman of the Wolverhampton Panel Committee); Dr. Jolly (M.O.H., Wolverhampton); Dr. Dean (M.O.H., Willenhall); Dr. Tibbetts (Staffordshire Panel Committee); Mr. Cholmeley (Wolverhampton), and many others. The interment took place at Cheltenham.

J. C. UHTHOFF, M.D., F.R.C.S.,

Consulting Physician, Sussex Eye Hospital, Brighton.

DR. JOHN CALDWELL UHTHOFF, formerly a well known practitioner in Brighton, died on January 19th at Bournemouth. He received his medical education at Guy's Hospital Medical School, took the diploma of M.R.C.S.Eng. in 1877, and graduated M.B., B.S.Lond. in 1878, with the University scholarship and gold medal in forensic medicine, the gold medal in materia medica and chemistry, and first-class honours in medicine and obstetric medicine. He proceeded to the M.D. in 1879, and obtained the F.R.C.S.Eng. in 1881. Dr. Uhthoff was for a time a Member of the Royal College of Physicians, but as he went into partnership in 1894 he resigned the diploma in accordance with the rule then existing. The diploma was restored to him at his request in 1896, but he again surrendered it in 1908. He had a large practice in Brighton, was at one time physician to the Royal Sussex County Hospital and the Sussex Eye Hospital, and ultimately became consulting physician to the latter institution. While continuing to practise as a general physician he gave particular attention to ophthalmology, a specialty in which he attained great distinction.

He took great interest in the work of the British Medical Association, was a member of the South-Eastern Branch Council, 1888-93, chairman of the Brighton Division in 1920, and a member of the Sussex Branch Council in 1921. When the British Medical Association held its Annual Meeting at Brighton in 1886 he was one of the secretaries of the Section of Pathology and Bacteriology, and in 1913, when the Association again held its Annual Meeting at Brighton, he was a vice-president of the Section of Pharmacology, Therapeutics, and Dietetics. He retired from practice in Brighton some years ago, and went to reside in Bournemouth, but did not lose his interest in medical affairs; at the time of his death he was representative of the Bournemouth Division on the Dorset and West Hants Branch Council.

He was buried at Hove on January 24th, when many old colleagues, including Drs. Jowers, Whittington, Fletcher, Chadborn, Bowring, Hunt (representing the Brighton and Sussex Medico-Chirurgical Society), L. A. Parry (representing the Sussex Branch of the British Medical Association), and A. G. S. Mahomed (representing the Bournemouth Division of the British Medical Association), attended as a last tribute of respect.

Dr. L. A. PARRY, Honorary Secretary of the Sussex Branch of the British Medical Association, has been good enough to send us the following tribute: The death of Dr. Uhthoff came as a great shock to his old friends in Brighton, where he will be greatly mourned. We of the profession well remember his kind and courteous ways to us all. I personally owe him many debts of gratitude for thoughtful actions. As Chairman of the Brighton Division of the Association he was always helpful to us in our work, and I could consult him on any matter and be sure of obtaining good advice. He had an enormous practice. His patients held him in the very highest regard. During the

war he acted as medical officer to one of the hospitals established in Brighton, giving his best services to those under his care. He was in the best sense of the words a real English gentleman. In Brighton we shall always remember him as one who enhanced the reputation of our profession in the town and was always willing and wishful to give us any advice and assistance that lay in his power.

NIELS THORKILD ROVSING,

Late Professor of Clinical Surgery, Copenhagen.

THE death of Professor Rovsing has robbed the Danish medical profession of a striking and forceful personality. It is always difficult to say how much anyone's success in life depends on character and personality and how much on intellect. But in Rovsing's case there can be no doubt that, both in force of character and weight of intellect, he was a head and shoulders above his fellows. He was born in 1862, and at the age of 23 had already passed his final examinations in medicine. Early in his career he began to think bacteriologically in his surgical work, and in the first paper he published, in conjunction with Dr. Heyn, he shattered the reputation of iodoform as an antiseptic application. "Shattered" is a word peculiarly apt in any account of Rovsing's writings, for fighting was as the breath of his nostrils, and he was at his best when attacking time-honoured teaching of the errors of which he had no doubt. Altogether he published about 200 papers, remarkable for their lucidity and convincing logic. Time may prove some of Rovsing's teachings to be mistaken, but his method of presenting them will always be a model. Fairly early in his career he acquired an interest in the weekly medical journal *Hospitalstidende*, which he later owned and ultimately gave to the Danish Medical Society. In 1899 he was appointed professor of operative surgery, but, curiously enough, this appointment did not bring with it hospital beds, though it did entail teaching. To repair this defect he started a private surgical nursing home in the same year, and its enlargement a few years later, with the provision of an *x*-ray laboratory, was a testimony to the efficiency with which this aspect of his work was conducted. In 1904, at the early age of 42, Rovsing was put in charge of the Frederiks Hospital as senior surgeon, and in 1905 his agitation for better surgical accommodation in Copenhagen was the beginning of the present Rigshospital, which was opened five years later.

Rovsing's work as a pioneer in surgery concerned chiefly the lower abdomen. Early in his career his attention was directed to the subject of cystitis; patients suffering from it were at this time treated for the most part in medical wards, with infusions and decoctions. Rovsing set himself the task of studying the causes of decomposition of urine and its prevention. His work on tuberculosis of the urinary tract also gained him an international reputation. Diseases of the gall bladder, and gall stones in particular, constituted another field in which he greatly distinguished himself. He was an active organizer, and he was one of the founders of the Danish Surgical Society. The recipient of many honours in his own country, he was also an honorary member of the Edinburgh Medico-Chirurgical Society and of the Association of Surgeons of Great Britain and Ireland. In 1926 severe heart disease with serious signs of cardiac insufficiency forced him to retire from his post at the University; after some improvement during the summer he developed signs of malignant disease of the larynx. It was characteristic of him that, a few days after a severe operation for this condition, he began to work again. He did not, however, tolerate a course of *x*-ray treatment well, and he died on January 14th, a flagging heart failing to respond to the calls made on it. One of his colleagues, Holger Strandgaard, who was in daily contact with him for seven years, writes in *Ugeskrift for Laeger*, the journal of the Danish Medical Association, as follows: "In his relations with assistants, nurses, and the rest of his staff he approached the ideal. He included us all in his work, made us participate in it, and was never afraid to let us feel that he appreciated the help that was given him. And so he made the great machinery work without friction."

Medico-Legal.

OPERATION WITHOUT CONSENT.

AN action was heard last week at the Liverpool Assizes (Civil Court) before Mr. Justice Wright, in which a hospital patient claimed damages against a surgeon for alleged negligence by performing an operation without her consent.

The plaintiff was Mrs. Hilda Maddocks, aged 28, and the defendant, Mr. John St. George Wilson, honorary surgeon to the Samaritan Hospital for Women, Liverpool. Mr. Wilson was represented by Mr. J. E. Singleton, K.C., and Viscount Erleigh (instructed by Messrs. Hempsons).

The plaintiff's case was that she went to the Samaritan Hospital for an internal complaint, and while being examined by Mr. Wilson under an anaesthetic a serious operation was performed upon her. She declared that she had not been previously asked, nor had she given, her consent to an operation. Since then she had had to undergo two further operations, and the wound caused by the first operation had not yet healed. There was no suggestion that the operation had not been skilfully performed. It was submitted on behalf of the defendant that although he had not the patient's express consent to operate he had her implied consent.

The plaintiff gave evidence bearing out the opening statement by her counsel, Mr. Rice Jones. In cross-examination she admitted that had she been told beforehand that an immediate operation was necessary she would have consented, but she would first have liked to get the consent of her husband. She agreed that the initial operation had probably saved her life.

Mr. St. George Wilson, giving evidence on his own behalf, said that it was not his duty to obtain the patient's permission for an operation; that devolved upon the hospital staff. The woman proved to be suffering from cystitis, and her condition was acute. There was risk of death sooner or later through ascending infection, and every day the infection persisted the greater was the danger. She was in severe pain. Had he not operated at once he would have had to do so a day or two later, when there would have been serious danger of further septic poisoning. The purpose of the operation was to save, if possible, other organs from becoming infected.

Dr. S. S. Barton, who assisted Mr. Wilson at the operation, said that the woman's condition needed an immediate operation; and Mr. H. C. W. Nuttall, surgeon to the Royal Southern Hospital, to whom Mr. Wilson sent the patient after she had been five weeks in the Samaritan Hospital, described her critical state when he operated upon her.

Mr. F. A. Jeans, surgeon to the Liverpool Royal Infirmary, who was called by the defence as an expert witness, said in reply to questions by the judge, that giving an opinion purely on the history of the case, he felt he would have done exactly the same as Mr. Wilson, who acted in the interests of the patient. In this case he had no doubt the right course had been taken. The operation would give immediate relief to the tension which was causing the septic poison to be absorbed.

Mr. Justice Wright, in the course of his summing-up, remarked that if a doctor performed an operation without the patient's consent, believing that by so doing he was saving the person's life, he had to take the risk of satisfying a jury that he had done what was right in the circumstances.

The special jury, after a retirement of three-quarters of an hour, returned a verdict in favour of the defendant, Mr. Wilson, adding a rider to the effect that doctors should not operate without the consent of the patient. To this the judge added the corollary —"if it can be avoided."

The Services.

DEATHS IN THE SERVICES.

LIEUT.-COLONEL ROBERT FRAZER STANDAGE, C.I.E., Bombay Medical Service (ret.), died suddenly in London on January 15th. He was born in 1868, and received his medical education at St. Bartholomew's Hospital Medical College, where he gained the Bentley surgical prize in 1890. He took the M.R.C.S. and L.R.C.P.Lond. in 1889, the M.R.C.P.Lond. in 1907, and the F.R.C.S.Eng. in 1920. After filling the posts of house-surgeon and house-physician at the Metropolitan Hospital, he entered the I.M.S. as lieutenant in 1895, became lieutenant-colonel after twenty years' service, and retired in January, 1926. His first five years were spent on military, plague, and famine duty, and for the last he received the thanks of the Bombay Government in 1897. He served in the Uganda mutiny in 1897-99, was mentioned in dispatches, and received the medal with a clasp. In December, 1900, he was appointed Residency surgeon at Bangalore, and in November, 1902, Residency surgeon of Mysore, where he remained till the end of his service, except during the great war. He was on military duty from July, 1917, to March, 1919, serving in British, Portuguese, and German East Africa, in Nyasaland, and Northern Rhodesia; he was mentioned in dispatches in January, 1919, and received the medal. In January, 1922, he was gazetted C.I.E., and last year received also the Order of St. John of Jerusalem. In his early years he was a good cricketer and a keen shikari. On retirement from the I.M.S. he joined a friend in practice at Venice. He married in 1902, and is survived by his widow and one son.

Universities and Colleges.

UNIVERSITY OF OXFORD.

THE following degree days have been announced for the remainder of the academic year: Saturday, February 19th; Saturday, April 9th; Thursday, May 5th; Saturday, June 11th; Friday, July 1st; Saturday, July 23rd; Saturday, August 6th.

At a congregation held on January 27th the following medical degrees were conferred:

B.M.—C. S. Broadbent, J. G. A. Davel, L. O. F. Fysh, A. H. Gale, Rosaleen L. Graves, C. L. Harding, R. A. Haythornthwaite, R. C. Hodges, C. W. Hope-Gill, R. Illingworth, T. M. Ling, G. E. Macdonald, R. G. MacGregor, W. F. H. Ray, W. D. B. Read, D. A. Robertson, E. M. Wright.

UNIVERSITY OF CAMBRIDGE.

SIR HUMPHRY ROLLESTON, Bt., M.D., Regius Professor of Physic, has been appointed by the Senate to represent the University at the celebration in London next April of the centenary of Lord Lister's birth.

At a congregation held on January 29th the degrees of M.B. and B.Chir. were conferred on R. T. Mummery.

UNIVERSITY OF LONDON.

AT a meeting of the Senate, held on January 26th, Mr. H. L. Eason, C.B., C.M.G., M.D., M.S., was appointed a member of the General Medical Council, and Sir William J. Collins, K.C.V.O., M.S., F.R.C.S., was elected a member of the Sanitary Institute and Sanitary Inspectors' Examination Joint Board. Sir Holburt J. Waring was elected the representative at the celebration of the centenary of the birth of Lord Lister to take place in London on April 5th. Mr. M. E. Delafield, M.B., B.Ch., was appointed the representative of University College at the Royal Sanitary Institute Congress to be held in July next at Hastings.

UNIVERSITY OF MANCHESTER.

THE Council of the University has appointed Dr. William Fletcher Shaw, who has been professor of obstetrics and gynaecology in the University since May, 1925, as professor of clinical obstetrics and gynaecology in succession to the late Professor W. E. Fothergill. The Council has also appointed Dr. Daniel Dougal, at present Lecturer in Obstetrics and Gynaecology in the University, to the chair of obstetrics and gynaecology vacated by Professor Fletcher Shaw.

UNIVERSITY OF GLASGOW.

THE following candidates have been approved for the degrees indicated:

CH.M.—James R. Learmonth.
PH.D.—John Donald, M.B., C.M.

ROYAL COLLEGE OF PHYSICIANS OF LONDON.

AN ordinary comitia of the Royal College of Physicians of London was held on Thursday, January 27th, the President, Sir John Rose Bradford, being in the chair.

Membership.

The following candidates were admitted to the membership:

Ahmed Khalil Abdel-Khalik, L.R.C.P., William Arthur Bourne, L.R.C.P., Hugh Nash Bradbrooke, M.B.Oxf., John Alexander Charles, M.B.Durh., George Coelho, M.B.Bombay, Thomas Reginald Davies, M.B.Lond., L.R.C.P., Charles Sydney Douglas Don, M.B.Aberd., John Hartley Gibbens, L.R.C.P., William Gunn, M.B.Aberd., George Stiven Halley, M.D.St. Andrews, John Reginald Brock Hern, M.B.Oxf., Alexander Mills Kennedy, M.D.Glasg., Robert Albert Edward Kiabor, M.B.Lond., L.R.C.P., Ardeshir Jehangirshah Kohiyar, M.B.Bombay, M.D.Lond., Geoffrey Laurence Samuel Kohnstam, M.B.Lond., L.R.C.P., Robert Daniel Lawrence, M.B.Aberd., Maurice Mitman, M.B.Lond., L.R.C.P., Edward Clark Noble, M.B.Toronto, Robert James Valentine Pulvertaft, M.B.Camb., L.R.C.P., William James Reid, M.D.Aberd., Olive Rendel, M.D.Lond., Navroji Kharshedji Sabiar, M.B.Lond., Lewis Herbert Savin, M.B.Lond., L.R.C.P., Kenneth Shirley Smith, L.R.C.P., Kenneth Andrew Soutar, M.B.Lond., L.R.C.P., Hilda North Stoessiger, M.B.Lond., Clara Dunbar Tingle, M.D.Sheff., Robert Arthur Walsh, M.B.Oxf., L.R.C.P., Robert George Banyard West, M.B.Lond., L.R.C.P., Cecil Oswald Young, M.B.Toronto.

Licences.

Licences were granted to the following 126 candidates who had passed the necessary examinations and conformed to the by-laws and regulations:

W. M. Abdel-Malek, G. M. Addison, J. C. B. Allen, J. S. Alman, H. Archer, F. F. Augsburger, M. T. Aung, G. C. Babington, D. H. Belfrage, R. N. Bery, R. V. Bowles, *Winifred P. Brinckman, A. H. Bruce, S. M. Burrows, C. P. Campion, *Margaret E. M. Carter, B. M. Clark, H. H. Cohen, E. Colin Russ, C. L. Cope, J. H. Couch, *Geraldine H. Cowle, R. D. Curran, C. Davies, J. Dean, *Daphne W. Dear, J. H. A. Donnelland, A. O. Dreosti, J. Ellison, D. K. Evans, *Enid C. Evans, E. S. Evans, F. M. M. Eyton-Jones, A. P. Farmer, G. M. FitzGibbon, A. McK. Fleming, A. B. Follows, *Elsie G. M. Ford, D. Gamsu, H. G. Garland, A. Golombek, T. R. Griffiths, S. W. Hardwick, Wilfred V. Harke, *Norah A. Haworth, *Lilian M. J. Henry E. M. V. Hensman, *Catherine E. Hill, H. E. Houlton, *Isabelle R. Humphreys-Owen, K. N. Isherwood, R. F. Jayne, A. C. Jepson, T. M. Jones, V. Kathirgamatamby, M. S. Kaire, F. Kellett, A. B. Kettle, P. N. Lahiri, D. T. Lewis, I. N. Lewis, E. W. Lindeck, D. A. Llewellyn, F. E. Loewy, *Joyce McConnell, W. S. Maclay, E. McLellan, G. McLoughlin, D. J. Macalyn, M. Malik, E. R. Matthews, F. B. Matthews, J. W. Melville, R. L. Midgley, I. A. Mills, *Margaret Mitchell, J. K. Monro, W. C. Munro, J. C. Neely, R. Nicklin, *Joan Nixon, W. C. W. Nixon, *Mary O'Leary, *Greta K. Olsson, *Catherine J. Ormerod, R. Pearce, N. F. Pearson, R. S. Pilcher, T. J. Pittard, L. G. J. Pitt-Payne, *Aileen M. S. Pollock, J. C. C. Poole, C. L. Potts, I. M. Preston, W. P. Purvis, J. S. Rake, *Marion Ravell, L. A. Richardson, N. Rizkalla, *Enid H. Rockstro, E. E. F. Rose, N. Rosen, G. E. Rowan, A. H. Russell, C. G. A. Sadler, C. H. St. Johnston, T. F. McN. Scott, D. H. Smith, H. M. Soar, R. Stanton, *Kathleen M. Stuart-Harris, C. N. Suter, C. B. V. Tait, H. Teitelbaum, H. D. Tonking, J. R. H. Towers, C. G. Townsend, A. G. Tribe, A. S. Wallis, *Edith V. E. Whidborne, N. J. Williams, G. P. Williams, W. D. Williams, R. W. Windle, C. E. Woodrow, F. H. Woolley.

* Under the Medical Act, 1876.

Diplomas in Special Subjects.

Diplomas in the subjects indicated were granted jointly with the Royal College of Surgeons to the following:

D.P.H.—M. L. Babl, Marjorie Broadbent, Madeleine H. Clarke, Kathleen Davies, Muriel Davies, J. Fanning, Dorothea C. Forbes, W. L. Forsyth, L. I. Hensell, K. H. Kamakaka, Dorothy L. M. Keats, A. R. Kynaston, A. S. MacNalty, S. M. Mallick, B. S. Manghirmalani, G. O. Mitchell, A. G. Morison, B. R. Nisbet, Helen O'Brien, Evelyn D. Owen, A. C. T. Perkins, Q. M. Said, J. B. Samson, T. G. N. Stokes, C. I. Streich, Elsie Warren.

DIPLOMA IN PSYCHOLOGICAL MEDICINE: M. Abd-el-Hakeem, P. Banbury, E. A. Bennet, J. Bennet, A. G. Duncan, Isabella A. Gillespie, J. Heron, F. L. McDaniel, H. B. Porteous, H. T. Retallack-Moloney.

DIPLOMA IN OPHTHALMIC MEDICINE AND SURGERY—M. Anton, T. R. Aynsley, Doris M. Baker, K. R. Chaudhri, M. Fine, Winifrede M. Fish, J. C. Gillespie, B. Gluck, B. Graves, J. W. Harris, H. N. Ingham, G. D. E. Jones, Edith M. F. McGill, H. D. Patel, N. N. Ray, A. H. S. Richardson, A. F. Senewiratne, T. Shukla, S. Singh, Caroline M. Stenhouse, D. A. Williams.

DIPLOMA IN LARYNGOLOGY AND OTOLOGY.—R. T. Desai, L. W. Johnston, O. F. A. Krause, C. S. Macdougall, J. E. G. McGibbon, N. M. Rao, T. Williams.

Appointments and Resignations.

Dr. W. C. Bosanquet, Dr. J. H. Sequeira, Dr. F. Craven Moore, and Dr. J. A. Nixon were elected councillors on the nomination of the Council.

Sir Francis Champneys was reappointed a representative of the College on the Central Midwives Board.

The resignation of Sir Humphry Rolleston of the post of representative of the College on the General Medical Council was received. Dr. E. Farquhar Buzzard was elected as his successor. A vote of thanks was accorded to Sir Humphry Rolleston for his services.

Dr. Stanley Barnes was appointed a representative of the College on the Court of Governors of the University of Birmingham in place of Dr. A. F. Voelcker, whose term of office had expired.

Dr. J. H. Abram was reappointed a representative of the College on the Court of Governors of the University of Liverpool.

The resignation of Sir William Hale-White of the post of representative of the College on the Central Council for District Nursing in London was received, and Dr. A. S. Woodwark was elected in his place.

The acceptance by Mr. F. H. Maugham, K.C., of the post of Senior Standing Counsel to the College was reported.

Dr. S. Monckton Copeman was appointed to represent the College at the Congress of the Sanitary Institute to be held at Hastings in July, 1927. The President was elected a delegate to the celebration of the Lister centenary in April, 1927.

Lecturers.

The President announced that he had appointed Dr. J. F. Gaskell to deliver the Bradshaw Lecture for 1927, and that the Council had appointed Dr. F. A. E. Crew, of the Animal Breeding Research Department of Edinburgh University, to be Milroy Lecturer in 1928.

Communications.

Communications were received from the Ministry of Health asking the College to nominate a representative to serve on an advisory committee of clinical experts to consider the details of the proposed alterations to be suggested by the British Government at the forthcoming revision of the international list of causes of death by the Health Section of the League of Nations at Geneva. Dr. Robert Hutchison was appointed.

Revised By-laws.

The revised by-laws were considered for the first time.

The President then dissolved the comitia.

SOCIETY OF APOTHECARIES OF LONDON.

THE following candidates have passed in the subjects indicated:

SURGERY.—G. W. Ayres, B. Best, N. S. J. Roberts (Section II), R. Rosenzvit, M. T. Y. Selim, W. D. Williams.

MEDICINE.—L. G. Apps, L. O. Jaggassar, L. W. Rose, S. E. Tremellen, S. Wray.

FORENSIC MEDICINE.—L. G. Apps, W. A. A. Collington, S. E. Tremellen, E. H. Waller.

MIDWIFERY.—G. W. Ayres, P. V. Bamford, R. Bobo, S. K. Rigg, K. Roberts.

The diploma of the Society has been granted to Messrs. R. Bobo, L. O. Jaggassar, K. Roberts, S. E. Tremellen, and W. D. Williams.

Medical News.

A GENERAL meeting of the subscribers to the Hamilton Drummond Memorial Fund will be held in the library of the Royal Infirmary, Newcastle-on-Tyne, on Monday next, February 7th, at 7.30 p.m., in order to approve a scheme for the memorial, and to appoint trustees for the fund and an executive committee.

THE Hunterian Oration to be given by Sir Berkeley Moynihan on Monday, February 14th, at 4 p.m., may perhaps be looked upon as inaugurating the course of lectures at the Royal College of Surgeons of England for this year. On Wednesday, February 16th, Mr. Ernest M. Cowell will give a lecture on the surgery of hernia, and on Friday, February 18th, Mr. A. H. Southam of Manchester will lecture on retained testis in childhood. Other lectures will follow on Mondays, Wednesdays, and Fridays until Wednesday, March 2nd, when Sir Arthur Keith will begin a series of six demonstrations of recent researches carried out in the museum. The final lecture of the course will be given on Monday, March 21st.

AT a meeting of the Royal Sanitary Institute, to be held at 90, Buckingham Palace Road, S.W., on Tuesday, February 15th, a discussion on immunization against diphtheria will be opened by Dr. William Robertson, medical officer of health, Edinburgh. The chair will be taken at 5.30 p.m. by Sir Arthur Newsholme.

HIS ROYAL HIGHNESS THE PRINCE OF WALES, patron of the Mental After-Care Association, has consented to preside at a meeting of the association at the Mansion House, on Thursday, March 31st, at 3 p.m.

THE next quarterly meeting of the Royal Medico-Psychological Association will be held on Wednesday, February 16th, at Cheshire County Mental Hospital, Parkside, Macclesfield. Members will spend the morning in visiting the wards of the admission hospital, the private patients' villa, and in witnessing a demonstration of the psycho-galvanometer. In the afternoon Mr. T. H. Pear, M.A., professor of psychology in the University of Manchester, will read a paper on visual imagery, with special reference to hallucinations.

AT a meeting of the Institution of Heating and Ventilating Engineers to be held at the Holborn Restaurant (Caledonian Room), on Wednesday, February 9th, at 2.30 p.m., Mr. J. L. Musgrave will give his presidential address, and Miss Margaret Fishenden, D.Sc., will read a paper on the effect of weather conditions upon the heat requirements of a house.

THE annual meeting and dinner of the Cambridge Graduates' Medical Club will be held at the Langham Hotel on Tuesday, March 1st, at 7.15 p.m., with the President, Sir Humphry Rolleston, Bt., K.C.B., in the chair. The honorary secretaries are Mr. Reginald M. Vick and Dr. F. G. Chandler. The price of the dinner (exclusive of wines) is 10s. 6d.

THE anniversary dinner of the Medical Society of London will be held at the Grand Hotel, Trafalgar Square, on Monday, March 7th, at 7.30 p.m.

DR. WANKLYN will lecture for the Fellowship of Medicine on the exanthemata, with special reference to small-pox, on February 10th, at 5 p.m., at the Medical Society, 11, Chandos Street, W.1, and Mr. Trethowan will give a demonstration at the Royal National Orthopaedic Hospital on the same day at 3 o'clock. A lecture on the causes and treatment of vomiting in children will be delivered by Dr. Beatty at the Royal Northern Hospital on February 15th at 3.15. These lectures and demonstrations are open to medical practitioners without fee. Beginning on February 7th the Paddington Green Hospital and the Victoria Hospital will hold jointly a two weeks' course in diseases of children; on the same date, at the London Lock Hospital, a four weeks' course in venereal diseases will open. The Royal Northern Hospital is arranging a special course, free to medical practitioners, for one week from February 21st. The Fellowship arranges practical courses in anaesthetics and courses in obstetrics; arrangements are made for clinical assistantships. Copies of all syllabuses of special courses, the general course programme, and the *Post-Graduate Medical Journal*, are obtainable from the Secretary of the Fellowship of Medicine, 1, Wimpole Street, W.1.

THE next meeting of the Post-Graduate Hostel will take place at the Imperial Hotel, Russell Square, W.C.1., on February 7th, at 9 p.m., when Mr. Clifford Morson will discuss prostatic disease. On February 10th Dr. R. M. Brontë will give an address on the medical witness in relation to crime. All medical practitioners are welcome to the meetings, Dinner (5s.) at 8 p.m.

THE Central London Ophthalmic Hospital has arranged for a clinical demonstration to be held by members of the staff on the first Tuesday of each month at 5 p.m. Practitioners and students of medicine will be admitted without fee. Those proposing to attend are asked to notify the Secretary at the Hospital, Judd Street, W.C.1.

A SHORT course of lectures on functional nerve disorder, for medical practitioners and students, will be given at the Tavistock Clinic for Functional Nerve Cases, 51, Tavistock Square, W.C.1, between February 14th and 25th. The lecturers are Drs. W. Langdon Brown, James Young, J. R. Rees, S. Roodhouse Gloyne, and H. Crichton Miller. The fee for the course to practitioners is £2 2s., and to medical students 10s. 6d.

THE new Post Certificate School of the General Lying-in Hospital, York Road, London, will be opened by the Right Hon. Neville Chamberlain, M.P., Minister of Health, on Tuesday, February 8th, at 3.15 p.m. The presentation of the building will be made to Sir Francis Champneys, Bt., M.D. (president of the hospital), by Mr. H. W. Lydall, the donor's solicitor. The chair is to be taken by Dr. John S. Fairbairn, and the ceremony will be followed by a reception.

THE Grocers' Company announces in our advertisement columns scholarships with the object of encouraging original research in sanitary science. The scholarships are tenable for one year, but renewable, and are of the value of £300 a year each, with an allowance to meet the cost of apparatus and other expenses in connexion with the work. The next election takes place in May, 1927. Forms of application and further particulars may be obtained from the Clerk of the Grocers' Company, Grocers' Hall, London, E.C.2.

WE are informed that a questionary has been issued to a number of medical practitioners in England, Scotland, and Wales by the National Association of British and Irish Millers in order to ascertain the views of the medical profession on white bread. An accompanying letter explains that the association is desirous of obtaining representative and authoritative medical opinion on the value of the type of bread which has been evolved by the public requirements of many years, and for the making of which nearly all its mills are specially equipped. Each doctor is asked whether he concurs in the statement that "the curse of our age is that we are provided with white bread"; whether he considers that, having regard to the average variety of diet now enjoyed by people in this country, white bread is a good and nutritious food; whether he considers that white bread, as part of an ordinary mixed diet, is likely to lower the standard of health; and whether he personally eats white bread. We are informed that the identity of those furnishing replies will be treated as confidential, and that the names were selected to cover every county, but otherwise were picked at random from the *Medical Directory*.

AT a meeting of some twenty medical men from various British spas, held in London on January 21st under the chairmanship of Dr. Kerr Pringle of Harrogate, it was resolved to establish a spa practitioners' association. Membership is open to registered medical men and women practising at a British spa. The annual subscription is 10s. 6d. The secretary is Dr. J. B. Burt, 11, Broad Walk, Buxton, from whom all particulars can be obtained.

THE Central Association for Mental Welfare is arranging, with the approval of the Board of Education, a ten weeks' course of instruction from May 2nd to July 9th, 1927, for teachers of mentally defective and of dull and backward children. Lectures will be given in London on normal and abnormal psychology, methods of teaching, the medical aspects of mental deficiency, and social and legal work for defectives. Previous courses of this kind were held in 1925 and 1926. Further information may be obtained from the Central Association for Mental Welfare, 24, Buckingham Palace Road, S.W.1.

A REPORT on the school of midwifery and gynaecology in the University of Hong-Kong was issued by Professor R. E. Tottenham in *The Caduceus* for November, 1926. The work of the maternity department in the Government Civil Hospital during the year ending April 20th, 1926, is described, and reference is made to the apparent rarity of contracted pelvis in Chinese women. A clinical report of the gynaecological departments of the Government Civil and the Tsan Yeuk Hospitals is also given, and an interim report on gynaecological specimens in the school of pathology of the University.

THE gold medal of the Carnegie Hero Fund has been awarded to the surgeon and radiologist Dr. Honoré Vercauteren of Ghent, who has had several fingers amputated for radiodermatitis.

PROFESSOR H. F. O. HABERLAND of the Augusta Hospital, Cologne, who is compiling an extensive monograph on blood transfusion, asks for reprints of recent articles or records of unpublished cases, especially failures.

A BILL for making antityphoid inoculation compulsory has been laid before the French Senate.

DR. DAVID DUFF of Gray's Inn has been called to the Bar.

LIEUT.-GENERAL SIR JOHN GOODWIN, K.C.B., who was Director-General of the Army Medical Service from 1918 to 1923, has been appointed Governor of Queensland. Sir John Goodwin rendered distinguished service during the war. He holds the Mons star and the Allied and Victory medals, and received the C.M.G. in 1915 and the C.B. in 1918. He went with Mr. Balfour's mission to the United States in 1917 and was very successful in explaining to the American medical profession the position in which we were at that time; he received the American distinguished service medal and decorations from France, Belgium, and Italy. Earlier in his career he served with several expeditionary forces on the Indian frontier. Since his retirement he has been acting as Organizing Adviser of the British Empire Cancer Campaign.

A BEQUEST of 25,000 dols. (£5,000) for the establishment of a free dental clinic at Musselburgh has been made by Mr. Julius Brown, who died at Santa Monica, near Los Angeles, California, on December 9th last. Mr. Brown was a native of Musselburgh.

Letters, Notes, and Answers.

All communications in regard to editorial business should be addressed to ***The EDITOR, British Medical Journal, British Medical Association House, Tavistock Square, W.C.1.***

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the BRITISH MEDICAL JOURNAL alone unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication.

Authors desiring REPRINTS of their articles published in the BRITISH MEDICAL JOURNAL must communicate with the Financial Secretary and Business Manager, British Medical Association House, Tavistock Square, W.C.1, on receipt of proofs.

All communications with reference to ADVERTISEMENTS, as well as orders for copies of the JOURNAL, should be addressed to the Financial Secretary and Business Manager.

The ***TELEPHONE NUMBERS*** of the British Medical Association and the BRITISH MEDICAL JOURNAL are *MUSEUM 9861, 9862, 9863,* and *9864* (internal exchange, four lines).

The ***TELEGRAPHIC ADDRESSES*** are:

EDITOR of the BRITISH MEDICAL JOURNAL, *Aitiology Westcent, London.*

FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate Westcent, London.*

MEDICAL SECRETARY, *Mediaecra Westcent, London.*

The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin (telegrams: *Bacillus, Dublin*; telephone: 4737 Dublin), and of the Scottish Office, 6, Drumsheugh Gardens, Edinburgh (telegrams: *Associate, Edinburgh*; telephone: 4361 Central).

QUERIES AND ANSWERS.

DR. H. G. BURFORD (London, W.1), who has heard that varix has been treated successfully in Vienna by a solution of grape sugar, wishes to know whether the method has been tried in this country, and with what results.

POST-INFLUENZAL COUGH.

IN our issue of January 15th (p. 124) "W. H. F." asked for suggestions for the treatment of persistent cough following acute influenza which had resisted all sedatives. The following suggestion has been received in reply from "M. R. S.": Benzyl benzoate, 2 to 8 minims, as an emulsion or in capsules, acts almost "like a charm," especially for those paroxysms which occur in the early hours of the morning. As the patient gains strength the tendency to these "attacks" is lessened and finally disappears.

IODINE TREATMENT OF RHEUMATOID ARTHRITIS.

DR. A. E. COLLIE (Newport, I.W.) writes in answer to "M.B." (January 15th, p. 124): The following two cases at present under my care may be of interest. Mr. A., aged 73, has had rheumatoid arthritis for several years and has been unable, owing to pain and stiffness of his joints, either to dress or feed himself without assistance. Miss B., aged 44, has been crippled by rheumatoid arthritis for the past ten or twelve years. There is much deformity of the hands and toes, and she suffers considerable pain in the limbs. For the past three months both patients have been taking 20 minims of syrup of iodide of iron in water night and morning, together with 1 drachm of Crookes's collosol iodine three times a day after food. After the first dose or two of the collosol iodine, Mr. A. complained of sickness. I therefore combined the drug with 20 minims of liquid extract of liquorice and half an ounce of chloroform water, and this combination eliminated the nausea and vomiting. After two months of this treatment Mr. A. was able to dress himself alone and lace his own boots. He can now walk over half a mile, which he has not been able to do for the past three years. In the case of Miss B. the results are not so striking, but the treatment has certainly improved her condition and the pain is not so severe.

INCOME TAX.

"E. R. B." is working as an assistant and uses a two-seater car, averaging 100 miles a week. He has been allowed a sum of £50 per annum only for expenses as compared with his employer's allowance of £350 for two cars. What should he claim?

*** It has to be remembered that the rules for allowances to employees fall under Schedule E and are more restrictive than those under Schedule D—for example, there is no allowance for depreciation as such, though presumably the cost of renewal can be claimed for when necessarily incurred. We advise "E. R. B." to claim the amount of his actual running expenses for the year (revising his claim when the year expires if necessary), but excluding any expenses incurred in the private use of the car, and to intimate in doing so that he intends to lodge a supplementary claim for replacement of the car for the year in which that expenditure is incurred.

LETTERS, NOTES, ETC.

ACQUIRED MELANISM IN MOTHS TRANSMITTED BY INHERITANCE.

MELANISM is a subject which attracts increasing interest in biology as well as medicine, and in the issue of *Nature* (January 22nd, p. 127) Dr. J. W. Heslop Harrison has published an interesting account of acquired melanism occurring in certain moths in districts which have become industrialized. On Tyneside twenty-five years ago the moth Mottled Beauty corresponded with its name; now every specimen captured has become black. The same has been observed to occur in other species, such as the Pale Brindled Beauty and the Engrailed. On the Continent similar instances of the development of melanism, affecting the Poplar Lutestring, and the Great Oak Beauty, have been noted in districts which have become the seat of industry. The Peppered Moth has gone black both in England and in America (at Pittsburg), as also the Small Engrailed. As large amounts of manganese have been found in the foliage of trees upon which the larvae feed in Middlesbrough Park, larvae were fed on foliage contaminated by manganese, also by lead, and breeding yielded melanized individuals. The larvae of these in turn were fed on uncontaminated food, but the acquired melanism was transmitted to its descendants. Thus acquired melanism was proved to be transmissible by inheritance.

WOMEN ON HOSPITAL STAFFS.

WE continue to receive letters commenting on a statement made in our issue of November 6th that we believed that the election of Miss Lily Baker, B.A., M.B., to the staff of the Bristol Royal Infirmary created an important precedent, implying that a woman had not previously been appointed to full membership of the honorary medical staff of a general hospital with a teaching school. In a later issue we qualified this statement by excepting the Royal Free Hospital; and we are reminded by Miss May Thorne that at this hospital the Committee of Management appointed a woman on its staff as honorary gynaecologist in 1902. Since then, of course, a number of appointments of women have been made at the Royal Free Hospital. Miss Marion B. Andrews points out that at the Ulster Hospital for Children and Women at Belfast, a teaching hospital in connexion with the Queen's University, she was appointed assistant surgeon in 1904, full surgeon in 1906, and consulting surgeon in 1917.

APROPOS of a previous reference to appointments at children's hospitals Dr. C. BUTTAR writes that, as a mere man, he objects to the assumption that a children's hospital, even if used for teaching, can be described as a general hospital. It is true, he says, that the word "special" is used of hospitals in two senses, either of special diseases or of a special class of patient: but a general hospital, surely, is a place where any persons (including men) can be attended for any disease.

AN ALTERNATIVE TO CIRCUMCISION.

DR. I. M. JEFFERISS (Lakenheath) writes: The description of the simple procedure required in the treatment of cases of phimosis by the late Dr. D. W. Whitfield (January 29th, p. 187) should be hung up in every hospital out-patient department. To circumcise a normal boy is a barbarous and unnecessary operation. Circumcision is only required when retraction of the prepuce is impossible owing to scar tissue or other results of balanitis. A protective covering to the glans penis is not an abnormal condition, and apart from the performance of the operation as a religious rite there is no need to cut off a portion of the human body for the sake of cleanliness. Every prepuce unaffected by pathological conditions can be retracted by the aid of a blunt probe and a little patience. Recurrent herpes of the glans has been treated by me by fixing a permanently retracted prepuce over the glans with lint and strapping until the organ regained its natural protective covering. There is no need to stretch the prepuce and no more need to remove it than there is to remove the average visible and properly developed tonsil.

VACANCIES.

NOTIFICATIONS of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 42, 43, 46, and 47 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 44 and 45.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page 47.

'A very old cystitis in a patient (aged 84) has been cleared up by its use. I am indebted to you."
—, —, ——, M.R.C.S., L.R.C.P.

CAPROKOL
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